CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

CENTRAL VALLEY REGION

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ORDER NO. R5-2010-XXXX
NPDES NO. <CAXXXXXXX>

WASTE DISCHARGE REQUIREMENTS FOR THE
BULLION RIVER GOLD CORPORATION, FRENCH GULCH (NEVADA) MINING CORPORATION
AND U.S. DEPARTMENT OF THE INTERIOR, BUREAU OF LAND MANAGEMENT
WASHINGTON MINE
SHASTA COUNTY

The following Discharger is subject to waste discharge requirements as set forth in this Order:

Table 1. Discharger Information

Discharger	Bullion River Gold Corporation, French Gulch (Nevada) Mining Corporation and U.S. Department of Interior, Bureau Of Land Management
Name of Facility	Washington Mine
Facility Address	10388 French Gulch Road
	French Gulch, CA 96033
	Shasta County
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a minor discharge.	

The discharge by the Bullion River Gold Corporation, French Gulch (Nevada) Mining Corporation and U.S. Department of the Interior, Bureau of Land Management from the discharge points identified below is subject to waste discharge requirements as set forth in this Order:

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Mine Waste Water Treatment Plant	40º 42' 59" N	122º 41' 21" W	Scorpion Gulch
002	O'Neil Adit	40º 43' 13" N	122º 41' 21" W	Scorpion Gulch
003	Government Adit	40º 43' 05" N	122º 41' 08" W	Scorpion Gulch
004	New Adit	40º 43' 04" N	122º 40' 52" W	Scorpion Gulch
005	Robillard Adit	40º 43' 15" N	122º 40' 18" W	Scorpion Gulch
006	I Level Adit	40º 43' 15" N	122º 40' 18" W	French Gulch
007	Land Disposal Area	40º 43' 13" N	122º 40' 35" W	-

Table 3. Administrative Information

This Order was adopted by the Regional Water Quality Control Board on:	**<Adoption Date>**
This Order shall become effective on:	**<Effective Date>**
This Order shall expire on:	**<Expiration Date>**
The Discharger shall file a Report of Waste Discharge in accordance with title 23, California Code of Regulations, as application for issuance of new waste discharge requirements no later than:	**[Choose: 180 days prior to the Order expiration date OR <insert date>]**

IT IS HEREBY ORDERED, that in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder and the provisions of the federal Clean Water Act (CWA) and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on **<Adoption Date>**.

PAMELA C. CREEDON, Executive Officer

Table of Contents

I. Facility Information 4
II. Findings 4
III. Discharge Prohibitions 11
IV. Effluent Limitations and Discharge Specifications 12
A. Effluent Limitations – Discharge Points 001-006 12
1. Final Effluent Limitations – Discharge Points 001-006 12
2. Interim Effluent Limitations-NOT APPLICABLE 14
B. Land Discharge Specifications-Discharge Point 007 14
C. Reclamation Specifications – NOT APPLICABLE 15
V. Receiving Water Limitations 15
A. Surface Water Limitations 15
B. Groundwater Limitations-NOT APPLICABLE 17
VI. Provisions 17
A. Standard Provisions 17
B. Monitoring and Reporting Program (MRP) Requirements 21
C. Special Provisions 22
1. Reopener Provisions 22
2. Special Studies, Technical Reports and Additional Monitoring Requirements 23
3. Best Management Practices and Pollution Prevention a. Salinity Source Control Program. The Discharger shall develop and implement a Salinity Source Control program and update as necessary. The Discharger shall provide annual reports demonstrating reasonable progress in the reduction of salinity in its discharge to Scorpion and French Gulch. The annual reports shall be submitted in accordance with the Monitoring and Reporting Program (Attachment E, Section X.D.1) 25
4. Construction, Operation and Maintenance Specifications 25
5. Special Provisions for Municipal Facilities (POTWs Only)-NOT APPLICABLE 27
6. Other Special Provisions 27
7. Compliance Schedules - NOT APPLICABLE 27
VII. Compliance Determination – NOT APPLICABLE 27

List of Tables

Table 1. Discharger Information ..... Cover
Table 2. Discharge Location ..... Cover
Table 3. Administrative Information ..... Cover
Table 4. Facility Information 4
Table 5. Basin Plan Beneficial Uses 8
Table 6. Effluent Limitations 12
Table 7. Land Disposal Limitations 14

List of Attachments

Attachment A – Definitions A-1
Attachment B – Map B-1

Attachment C – Flow Schematic C-1
Attachment D – Standard Provisions D-1
Attachment E – Monitoring and Reporting Program (MRP) E-1
Attachment F – Fact Sheet F-1
Attachment G – Reasonable Potential Analyses G-1
Attachment H – Effluent and Receiving Water Characterization Study H-1

I. FACILITY INFORMATION

The following Discharger is subject to waste discharge requirements as set forth in this Order:

Table 4. Facility Information

Discharger	Bullion River Gold Corporation, French Gulch (Nevada) Mining Corporation, and U.S. Department of Interior, Bureau of Land Management
Name of Facility	Washington Mine
Facility Address	10388 French Gulch Road
	French Gulch, CA 96033
	Shasta County
Facility Contact, Title, and Phone	Gerhard Nel, President and Chief Executive Officer, Bullion River Gold Corp, (530) 227-8691
Mailing Address	P.O. Box 106, French Gulch, CA 96033
Type of Facility	Industrial (Gold Mine)
Facility Design Flow	0.432 mgd

II. FINDINGS

The California Regional Water Quality Control Board, Central Valley Region (hereinafter Regional Water Board), finds:

A. Background. Bullion River Gold Corporation and French Gulch (Nevada) Mining Corporation submitted a Report of Waste Discharge, dated March 2007 and applied for a National Pollutant Discharge Elimination System (NPDES) permit authorization to discharge up to 0.432 mgd (300 gpm) of treated wastewater from Washington Mine. Supplemental information was requested on 19 October 2007 and June 2008. Additional information was submitted on 5 May 2008 , 24 July 2008, 18 March 2009, 12 September 2009, and 8 October 2009.

The Washington Mine complex is partially owned by Bullion River Gold Corporation and operated by French Gulch (Nevada) Mining Corporation. The O'Neil Adit is on patented mine claim owned by Bullion River Gold Corporation. The Washington Mill, New Adit, Robillard Adit, Government Adit, and I-Level Adit are on unpatented mine claims administered by the U.S. Department of Interior, Bureau of Land Management. Bullion River Gold Corporation, French Gulch (Nevada) Mining Corporation, and the U.S. Department of Interior, Bureau of Land Management are designated hereafter as the Discharger.

This is an existing facility with existing unregulated discharges of untreated mine drainage to surface waters. The Discharger is proposing to treat the mine drainage and mill wastewater prior to discharge to surface waters.

The U.S. Government, through the agency of the U.S. Department of Interior, Bureau of Land Management (BLM), is the owner of a portion of the real property at which the discharge will occur. The BLM is responsible for ensuring compliance with these requirements on land over which they administer, but Bullion River Gold Corporation and French Gulch (Nevada) Mining Corporation, are responsible for day-to-day operations and monitoring. Enforcement actions will be taken against the BLM (landowners) only in the event that enforcement actions against Bullion River Gold Corporation and French Gulch (Nevada) Mining Corporation are ineffective or would be futile, or that enforcement is necessary to protect public health or the environment. In addition, since the BLM is a public agency, enforcement actions will be taken against them only after they are given the opportunity to use their governmental powers promptly to remedy the waste discharge.

For the purposes of this Order, references to the "discharger" or "permittee" in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

B. Facility Description. The Discharger owns and operates the Washington Mine, an underground hard-rock gold mine approximately 2.5 miles west of the community of French Gulch, Shasta County. Waste water originates from several mine portals throughout the property and from the mill. Historically, waste water in the form of mine drainage from the mine portals has not been regulated. The Discharger proposes to collect mine drainage from various mine adits and waste water from the mill, treat the water to remove pollutants, and discharge it to surface waters.

The mine drainage from the New Adit and mill will be treated and the effluent discharged to Discharge Point 001, Scorpion Gulch, a water of the United States and tributary to French Gulch, Clear Creek and ultimately the Sacramento River. Scorpion Gulch is within the French Gulch Hydrologic Sub area (524.64) in the Clear Creek Hydrologic area. The discharge of mine drainage from other mine adits under the control of the Discharger, including the O'Neal, Government, and Robillard, also enter the Scorpion Gulch Creek drainage and discharges from the I-Level adit enters French Gulch Creek.

Other mine adits that discharge mine drainage in the area but are not under the control of the Discharger include the Scorpion Adit on BLM land which enters Scorpion Gulch and significantly impacts water quality in Scorpion Gulch. The J-Level adit and the Barns adit are also on BLM land and the discharges enter French Gulch. Recent mining activity has not occurred in these adits.

Depending upon the time of year and precipitation, the discharge from the O'Neil, Government, Robillard, and I-Level, may not flow on the surface directly to Scorpion Gulch or French Gulch before infiltrating into the subsurface; however, because Scorpion Gulch and French Gulch are gaining streams, (a condition where ground water flows from the surrounding terrain into the creek, increasing the flow of the creek) a percentage of the infiltrated mine drainage and associated waste constituents also enter the surface waters via subsurface flow. A percentage of the infiltrated mine drainage is

used by vegetation. The remaining flow and waste constituents contribute to the baseline flow in each watershed.

All point sources of mine drainage, including the mine adits, will eventually be collected and either piped to the water treatment system at the mill, another potential water treatment system, or the discharge of mine drainage will be stopped by other means, including, but not limited to, installation of concrete plugs or connection with other underground workings where the water can be collected and treated. A concurrent Cease and Desist Order is proposed with a time schedule to address the adits under control and/or claim by the Discharger which either discharge or have the potential to discharge mine drainage to surface waters, including the O'Neal, Government, Robillard, and I-Level Adits.

The mine portal discharges are comprised of groundwater that has been collected in the underground mine workings and is either drained by gravity out of the mine portal where it may infiltrate into the native soil or directly enter surface water drainage courses. Over the past four years, mine water collected in the New Adit has been pumped from the adit and discharged to land at the waste rock disposal facility where it has evaporated and infiltrated into the waste rock and native soil. Waste water from the mill is recycled back through the facility and operates at a net deficit and is designed to be a closed circuit. In the event this water exceeds the capacity of the system it may also be treated prior to disposal to surface waters.

Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.

C. Legal Authorities. This Order is issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and chapter 5.5, division 7 of the California Water Code (commencing with section 13370). It shall serve as a NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the Water Code (commencing with section 13260).

D. Background and Rationale for Requirements. The Regional Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for Order requirements, is hereby incorporated into this Order and constitutes part of the Findings for this Order. Attachments A through E and G through H are also incorporated into this Order.

E. California Environmental Quality Act (CEQA). Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code sections 21100-21177.

F. Technology-based Effluent Limitations. Section 301(b) of the CWA and implementing USEPA permit regulations at section 122.44, title 40 of the Code of Federal Regulations (CFR)[1] require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Effluent limitations Guidelines and Standards for the Ore Mining and Dressing Point Source Category in 40 CFR Part 440, Subpart J – Copper, Lead, Zinc, Gold, Silver, and Molybdenum Ores Subcategory. A detailed discussion of the technology-based effluent limitations development is included in the Fact Sheet (Attachment F).

G. Water Quality-based Effluent Limitations. Section 301(b) of the CWA and 40 CFR 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards.

Section 122.44(d)(1)(i) mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, water quality-based effluent limitations (WQBELs) must be established using: (1) EPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed State criterion or policy interpreting the State's narrative criterion, supplemented with other relevant information, as provided in 40 CFR section 122.44(d)(1)(vi).

H. Water Quality Control Plans. The Regional Water Board adopted a *Water Quality Control Plan, Fourth Edition (Revised October 2007), for the Sacramento and San Joaquin River Basins* (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. The Basin Plan at page II-2.00 states that the "…*beneficial uses of any specifically identified water body generally apply to its tributary streams*." The Basin Plan does not specifically identify beneficial uses for Scorpion Gulch or French Gulch, but does identify present and potential uses for Whiskeytown Reservoir, to which Scorpion Gulch and French Gulch, via Upper Clear Creek, are tributary. These beneficial uses are as follows: municipal and domestic supply; agricultural supply, including stock watering; hydropower generation; water contact recreation; non-contact water recreation, including aesthetic enjoyment; warm freshwater habitat; cold freshwater habitat; warm spawning, reproduction, and/or early development; and wildlife habitat.

In addition, the Basin Plan implements State Water Resources Control Board (State

[1] All further statutory references are to title 40 of the Code of Federal Regulations unless otherwise indicated.

Water Board) Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Thus, as discussed in detail in the Fact Sheet, beneficial uses applicable to Scorpion Gulch and French Gulch are as follows:

Table 5. Basin Plan Beneficial Uses

Discharge Point	Location	Receiving Water Name	Beneficial Use(s)
001	**Treatment Plant**	**Scorpion Gulch**	Existing: Municipal and domestic supply (MUN); agricultural supply (AGR), including irrigation and stock watering; hydropower generation (POW); water contact recreation (REC-1); other non-contact water recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); warm spawning (SPWN); wildlife habitat (WILD).
002	**O'Neil Adit**	**Scorpion Gulch**	
003	**Government Adit**	**Scorpion Gulch**	
004	**New Adit**	**Scorpion Gulch**	
005	**Robillard Adit**	**Scorpion Gulch**	
006	**I Level Adit**	**French Gulch**	
007	**Land Disposal Area**	_	

Requirements of this Order implement the Basin Plan.

I. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on December 22, 1992, and later amended it on May 4, 1995 and November 9, 1999. About forty criteria in the NTR applied in California. On May 18, 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on February 13, 2001. These rules contain water quality criteria for priority pollutants.

J. **State Implementation Policy.** On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000 with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Board in the Basin Plan. The SIP became effective on May 18, 2000 with respect to the priority pollutant criteria promulgated by the USEPA through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005 that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

K. **Compliance Schedules and Interim Requirements.** In general, an NPDES permit must include final effluent limitations that are consistent with Clean Water Act section 301 and with 40 CFR 122.44(d). There are exceptions to this general rule. The State Water Board has concluded that where the Regional Water Board's Basin Plan allows for schedules of compliance and the Regional Water Board is newly interpreting a narrative standard, it may include schedules of compliance in the permit to meet effluent

limits that implement a narrative standard. See In the Matter of Waste Discharge Requirements for Avon Refinery (State Board Order WQ 2001-06 at pp. 53-55). See also Communities for a Better Environment et al. v. State Water Resources Control Board, 34 Cal.Rptr.3d 396, 410 (2005). The Basin Plan for the Sacramento and San Joaquin Rivers includes a provision that authorizes the use of compliance schedules in NPDES permits for water quality objectives that are adopted after the date of adoption of the Basin Plan, which was September 25, 1995 (See Basin Plan at page IV-16). Consistent with the State Water Board's Order in the CBE matter, the Regional Water Board has the discretion to include compliance schedules in NPDES permits when it is including an effluent limitation that is a "new interpretation" of a narrative water quality objective. This conclusion is also consistent with the United States Environmental Protection Agency policies and administrative decisions. See, e.g., Whole Effluent Toxicity (WET) Control Policy. The Regional Water Board, however, is not required to include a schedule of compliance, but may issue a Time Schedule Order pursuant to Water Code section 13300 or a Cease and Desist Order pursuant to Water Code section 13301 where it finds that the discharger is violating or threatening to violate the permit. The Regional Water Board will consider the merits of each case in determining whether it is appropriate to include a compliance schedule in a permit, and, consistent with the Basin Plan, should consider feasibility of achieving compliance, and must impose a schedule that is as short as practicable to achieve compliance with the objectives, criteria, or effluent limit based on the objective or criteria.

For CTR constituents, Section 2.1 of the SIP provides that, based on a Discharger's request and demonstration that it is infeasible for an existing Discharger to achieve immediate compliance with an effluent limitation derived from a CTR criterion, compliance schedules may be allowed in an NPDES permit. Unless an exception has been granted under section 5.3 of the SIP, a compliance schedule may not exceed 5 years from the date that the permit is issued or reissued, nor may it extend beyond 10 years from the effective date of the SIP (or May 18, 2010) to establish and comply with CTR criterion-based effluent limitations. Where a compliance schedule for a final effluent limitation that exceeds 1 year, the Order must include interim numeric limitations for that constituent or parameter. Where allowed by the Basin Plan, compliance schedules and interim effluent limitations or discharge specifications may also be granted to allow time to implement a new or revised water quality objective. Outside of the New Adit, the Discharger may be unable to meet the CTR requirements for discharges to surface waters by 10 May 2010. Therefore this Order does not include compliance schedules or interim effluent limitations and discharge specifications, instead a separate Cease and Desist Order is proposed to be adopted concurrently with the permit. A detailed discussion of the basis for the Cease and Desist Order and interim effluent limitation(s) and discharge specifications is included in the propose Cease and Desist Order.

L. Alaska Rule. On March 30, 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards (WQS) become effective for CWA purposes. (40 C.F.R. § 131.21; 65 Fed. Reg. 24641 (April 27, 2000).) Under the revised regulation (also known as the Alaska rule), new and revised standards submitted to USEPA after May 30, 2000, must be approved by USEPA before being

used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30, 2000 may be used for CWA purposes, whether or not approved by USEPA.

M. Stringency of Requirements for Individual Pollutants. This Order contains both technology-based and water quality-based effluent limitations (WQBELs) for individual pollutants. The technology-based effluent limitations consist of restrictions on total suspended solids. Restrictions on total suspended solids are specified in federal regulations as discussed in 40 CFR 440.102. The WQBELs consist of restrictions on antimony, arsenic, cadmium, copper, lead, zinc, pH, specific conductivity, and turbidity. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements.

Water quality-based effluent limitations have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant water quality-based effluent limitations were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR section 131.38. The scientific procedures for calculating the individual water quality-based effluent limitations are based on the CTR-SIP, which was approved by USEPA on May 1, 2001. All beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to May 30, 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to May 30, 2000, but not approved by USEPA before that date, are nonetheless "*applicable water quality standards for purposes of the [Clean Water] Act*" pursuant to 40 CFR section 131.21(c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the technology-based requirements of the CWA and the applicable water quality standards for purposes of the CWA.

N. Antidegradation Policy. Section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 is consistent with the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. As discussed in detail in the Fact Shee,t the permitted discharge is consistent with the antidegradation provision of section 131.12 and State Water Board Resolution No. 68-16.

O. Anti-Backsliding Requirements. Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at title 40, Code of Federal Regulations section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. This is the first permit issued to regulate this discharge.

P. Monitoring and Reporting. Section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorizes the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and State requirements. This Monitoring and Reporting Program is provided in Attachment E.

Section 1.2 of the SIP directs the Regional Water board to require, pursuant to California Water code Section 13267, all NPDES dischargers to submit data sufficient to (1) determine if priority pollutants require effluent limitations (reasonable potential analysis) and (2) calculate WQBELs. Further, Section 2.4 of the SIP requires that each discharger submit to the Regional Water Boards reports necessary to determine compliance with effluent limitations for priority pollutants in permits. This Order requires the Discharger to conduct sampling for priority toxic pollutants and other constituents and to report those results to the Regional Water Board. A detailed discussion of the basis for the study and the specific requirements are included in the Fact Sheet (Attachment F) and the Constituent Study (Attachment H).

Q. Standard and Special Provisions. Standard Provisions, which apply to all NPDES permits in accordance with section 122.41, and additional conditions applicable to specified categories of permits in accordance with section 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under section 122.42. The Regional Water Board has also included in this Order special provisions applicable to the Discharger. A rationale for the special provisions contained in this Order is provided in the attached Fact Sheet.

R. Provisions and Requirements Implementing State Law. The provisions/requirements in subsections IV.B, and VI.C. of this Order are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.

S. Notification of Interested Parties. The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe Waste Discharge Requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of notification are provided in the Fact Sheet of this Order.

T. Consideration of Public Comment. The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet (Attachment F) of this Order.

III. DISCHARGE PROHIBITIONS

A. Discharge of wastewater at a location or in a manner different from that described in the Findings is prohibited.

B. The modification of the current methodology of dewatering the mine workings (pumping mine drainage from the New Adit) to allow or force it to flow from another mine adit where it is not collected and treated is prohibited.

C. The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by Federal Standard Provisions I.G. and I.H. (Attachment D).

D. Neither the discharge nor its treatment shall create a nuisance as defined in Section 13050 of the California Water Code.

E. The Discharger shall not allow pollutant-free wastewater to be discharged into the collection, treatment, and disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Points 001-006

1. Final Effluent Limitations – Discharge Points 001-006

The Discharger shall maintain compliance with the following effluent limitations at Discharge Points 001-006, with compliance measured at Monitoring Locations EFF-001, EFF-002, EFF-003, EFF-004, EFF-005, and EFF-006 as described in the attached MRP (Attachment E). If the discharge from a given Monitoring Location is collected and routed to the main water treatment system or another treatment system, then compliance shall be measured at the discharge from the respective water treatment system.

a. The Discharger shall maintain compliance with the effluent limitations specified in Table 6:

Table 6. Effluent Limitations

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Antimony, Total Recoverable	µg/L	6.0			
Arsenic, Total Recoverable	µg/L	10.0			
Beryllium	µg/L	4			
Cadmium, Total Recoverable	µg/L	0.24	0.5		
Chromium, Total Recoverable	µg/L	50	100		
Cobalt, Total Recoverable	µg/L	50			

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Copper, Total Recoverable	µg/L	5.0	10.3		
Lead, Total Recoverable	µg/L	1.7	3.4		
Mercury, Total Recoverable	µg/L	0.05	0.10		
Molybdenum, Total Recoverable	µg/L	10			
Nickel, Total Recoverable	µg/L	20	40		
Silver, Total Recoverable	µg/L				2.3
Vanadium, Total Recoverable	µg/L	100			
Zinc, Total Recoverable	µg/L	13	27		
Ammonia	mg/L	0.7	2.1		
BOD	mg/L	<5			
Chlorine	mg/l	0.02[1]	0.01[2]		
Nitrate (as N)	mg/L	10			
Nitrite (as N)	mg/L	1			
Oil and Grease	mg/L	10	15		
pH	standard units			6.5	8.5
Total Petroleum Hydrocarbons (Diesel)	µg/L		50		
Total Suspended Solids	mg/L	20	30		
Methyl Isobutyl Carbinol	µg/L	<5	<5		
Potassium Amyl Xanthate	µg/L	ND	ND		

[1] 1-hour average
[2] 4-day average

b. **Acute Whole Effluent Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

70%, minimum for any one bioassay; and
90%, median for any three consecutive bioassays.

c. **Turbidity.** Effluent turbidity shall not exceed:

i. 2 NTU, as a daily average; and
ii. 5 NTU, more than 5% of the time within a 24-hour period.

d. **Average Daily Discharge Flow.** The Average Daily Discharge Flow shall not exceed 432,000 gallons (300 gpm).

2. Interim Effluent Limitations-NOT APPLICABLE

B. Land Discharge Specifications-Discharge Point 007

1. The maximum daily discharge shall not exceed 0.475 million gallons

2. The discharge of waste classified as “hazardous” as defined in section 2521(a) of Title 23, California Code of Regulations (CCR), or “designated”, as defined in section 13173 of the CWC, to the land disposal area is prohibited.

3. Waste water will not be applied to land during times of precipitation or when there is a chance the discharge will runoff the immediate area of application.

4. The discharge shall not cause an accumulation of waste constituents in the soil that may be detrimental to vegetation or contaminate storm water runoff.

5. The pH of the discharge shall not be less than 6.5 or greater than 8.5.

6. The Discharger shall maintain compliance with the following limitations at Discharge Point-007, with compliance measured at Monitoring Location LND-001 as described in the attached MRP.

Table 7. Land Disposal Limitations

Parameter	Units	Discharge Specifications	
		Average Monthly	Maximum Daily
Antimony, Total Recoverable	µg/L	6.0	
Arsenic, Total Recoverable	µg/L	10	
Beryllium	µg/L	4	
Cadmium, Total Recoverable	µg/L	0.24	0.5
Chromium, Total Recoverable	µg/L	50	100
Cobalt, Total Recoverable	µg/L	50	
Copper, Total Recoverable	µg/L	5	10.3
Lead, Total Recoverable	µg/L	1.7	3.4
Mercury, Total Recoverable	µg/L	0.05	0.10
Molybdenum, Total Recoverable	µg/L	10	
Nickel, Total Recoverable	µg/L	20	4.0
Silver, Total Recoverable	µg/L		2.3
Vanadium, Total Recoverable	µg/L	100	
Zinc, Total Recoverable	µg/L	13	27
Oil and Grease	mg/L	1.0	1.5
Total Petroleum Hydrocarbons (Diesel)	µg/L		5.0
Methyl Isobutyl Carbinol	µg/L	<5	<5

Parameter	Units	Discharge Specifications	
		Average Monthly	Maximum Daily
Potassium Amyl Xanthate	µg/L	ND	ND

C. Reclamation Specifications – NOT APPLICABLE

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

Receiving water limitations are based on water quality objectives contained in the Basin Plan and are a required part of this Order. The discharge shall not cause the following in Scorpion Gulch or French Gulch.

1. **Bacteria**. The fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, to exceed a geometric mean of 200 MPN/100 mL, nor more than ten percent of the total number of fecal coliform samples taken during any 30-day period to exceed 400 MPN/100 mL.

2. **Biostimulatory Substances**. Water to contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.

3. **Chemical Constituents**. Chemical constituents to be present in concentrations that adversely affect beneficial uses.

4. **Color**. Discoloration that causes nuisance or adversely affects beneficial uses.

5. **Dissolved Oxygen**:

   a. The monthly median of the mean daily dissolved oxygen concentration to fall below 85 percent of saturation in the main water mass;
   b. The 95 percentile dissolved oxygen concentration to fall below 75 percent of saturation; nor
   c. The dissolved oxygen concentration to be reduced below 7.0 mg/L at any time.

6. **Floating Material**. Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.

7. **Oil and Grease**. Oils, greases, waxes, or other materials to be present in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.

8. **pH**. The pH to be depressed below 6.5, raised above 8.5, nor changed by more than 0.5 units*:*

9. **Pesticides**:

   a. Pesticides to be present, individually or in combination, in concentrations that adversely affect beneficial uses;
   b. Pesticides to be present in bottom sediments or aquatic life in concentrations that adversely affect beneficial uses
   c. Total identifiable persistent chlorinated hydrocarbon pesticides to be present in the water column at concentrations detectable within the accuracy of analytical methods approved by USEPA or the Executive Officer
   d. Pesticide concentrations to exceed those allowable by applicable antidegradation policies (see State Water Board Resolution No. 68-16 and 40 CFR §131.12.).
   e. Pesticide concentrations to exceed the lowest levels technically and economically achievable.
   f. Pesticides to be present in concentration in excess of the maximum contaminant levels set forth in California Code of Regulations, Title 22, Division 4, Chapter 15 and
   g. Thiobencarb to be present in excess of 1.0 µg/L.

10. **Radioactivity**:

   a. Radionuclides to be present in concentrations that are harmful to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.
   b. Radionuclides to be present in excess of the maximum contaminant levels specified in Table 4 (MCL Radioactivity) of Section 64443 of Title 22 of the California Code of Regulations

11. **Salinity and Electrical Conductivity (EC).** The electrical conductivity shall not exceed 230 micromhos/cm (50 percentile) or 235 micromhos/cm (90 percentile) at Knights landing above Colusa Basin Drain; or 240 micromhos/cm (50 percentile) or 340 micromhos/cm (90 percentile) at I Street Bridge, based upon previous 10 years of record.

12. **Suspended Sediments**. The suspended sediment load and suspended sediment discharge rate of surface waters to be altered in such a manner as to cause nuisance or adversely affect beneficial uses

13. **Settleable Substances**. Substances to be present in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.

14. **Suspended Material**. Suspended material to be present in concentrations that cause nuisance or adversely affect beneficial uses.

15. **Taste and Odors**. Taste- or odor-producing substances to be present in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.

16. **Temperature**. The natural temperature to be increased by more than 5°F.

17. **Toxicity**. Toxic substances to be present, individually or in combination, in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life

18. **Turbidity**. The turbidity to increase as follows:

    a. More than 1 Nephelometric Turbidity Unit (NTU) where natural turbidity is between 0 and 5 NTUs.
    b. More than 20 percent where natural turbidity is between 5 and 50 NTUs.
    c. More than 10 NTU where natural turbidity is between 50 and 100 NTUs.
    d. More than 10 percent where natural turbidity is greater than 100 NTUs.

B. Groundwater Limitations-NOT APPLICABLE

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all Standard Provisions included in Attachment D of this Order.

2. The Discharger shall comply with the following provisions:

    a. If the Discharger's wastewater treatment plant is publicly owned or subject to regulation by California Public Utilities Commission, it shall be supervised and operated by persons possessing certificates of appropriate grade according to Title 23, CCR, Division 3, Chapter 26.

    b. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:

        i. violation of any term or condition contained in this Order;

        ii. obtaining this Order by misrepresentation or by failing to disclose fully all relevant facts;

        iii. a change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; and

        iv. a material change in the character, location, or volume of discharge.

The causes for modification include:

- *New regulations.* New regulations have been promulgated under Section 405(d) of the Clean Water Act, or the standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued.

- *Land application plans.* When required by a permit condition to incorporate a land application plan for beneficial reuse of sewage sludge, to revise an existing land application plan, or to add a land application plan.

- *Change in sludge use or disposal practice.* Under 40 Code of Federal Regulations (CFR) 122.62(a)(1), a change in the Discharger's sludge use or disposal practice is a cause for modification of the permit. It is cause for revocation and reissuance if the Discharger requests or agrees.

The Regional Water Board may review and revise this Order at any time upon application of any affected person or the Regional Water Board's own motion.

c. If a toxic effluent standard or prohibition (including any scheduled compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the CWA, or amendments thereto, for a toxic pollutant that is present in the discharge authorized herein, and such standard or prohibition is more stringent than any limitation upon such pollutant in this Order, the Regional Water Board will revise or modify this Order in accordance with such toxic effluent standard or prohibition.

   The Discharger shall comply with effluent standards and prohibitions within the time provided in the regulations that establish those standards or prohibitions, even if this Order has not yet been modified.

d. This Order shall be modified, or alternately revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the CWA, if the effluent standard or limitation so issued or approved:

   i. contains different conditions or is otherwise more stringent than any effluent limitation in the Order; or

   ii. controls any pollutant limited in the Order.

   The Order, as modified or reissued under this paragraph, shall also contain any other requirements of the CWA then applicable.

e. The provisions of this Order are severable. If any provision of this Order is found invalid, the remainder of this Order shall not be affected.

f. The Discharger shall take all reasonable steps to minimize any adverse effects to waters of the State or users of those waters resulting from any discharge or sludge use or disposal in violation of this Order. Reasonable steps shall include such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge or sludge use or disposal.

g. The Discharger shall ensure compliance with any existing or future pretreatment standard promulgated by USEPA under Section 307 of the CWA, or amendment thereto, for any discharge to the municipal system.

h. The discharge of any radiological, chemical or biological warfare agent or high-level, radiological waste is prohibited.

i. A copy of this Order shall be maintained at the discharge facility and be available at all times to operating personnel. Key operating personnel shall be familiar with its content.

j. Safeguard to electric power failure:

    i. The Discharger shall provide safeguards to assure that, should there be reduction, loss, or failure of electric power, the discharge shall comply with the terms and conditions of this Order.

    ii. Upon written request by the Regional Water Board the Discharger shall submit a written description of safeguards. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures, or other means. A description of the safeguards provided shall include an analysis of the frequency, duration, and impact of power failures experienced over the past five years on effluent quality and on the capability of the Discharger to comply with the terms and conditions of the Order. The adequacy of the safeguards is subject to the approval of the Regional Water Board.

    iii. Should the treatment works not include safeguards against reduction, loss, or failure of electric power, or should the Regional Water Board not approve the existing safeguards, the Discharger shall, within ninety days of having been advised in writing by the Regional Water Board that the existing safeguards are inadequate, provide to the Regional Water Board and USEPA a schedule of compliance for providing safeguards such that in the event of reduction, loss, or failure of electric power, the Discharger shall comply with the terms and conditions of this Order. The schedule of compliance shall, upon approval of the Regional Water Board, become a condition of this Order.

k. The Discharger, upon written request of the Regional Water Board, shall file with the Board a technical report on its preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events. This report may be combined with that required under Regional Water Board Standard Provision VI.A.2.m.

The technical report shall:

i. Identify the possible sources of spills, leaks, untreated waste by-pass, and contaminated drainage. Loading and storage areas, power outage, waste treatment unit outage, and failure of process equipment, tanks and pipes should be considered.

ii. Evaluate the effectiveness of present facilities and procedures and state when they became operational.

iii. Predict the effectiveness of the proposed facilities and procedures and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

The Regional Water Board, after review of the technical report, may establish conditions which it deems necessary to control accidental discharges and to minimize the effects of such events. Such conditions shall be incorporated as part of this Order, upon notice to the Discharger.

l. A publicly owned treatment works (POTW) whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment and disposal facilities. The projections shall be made in January, based on the last three years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in four years, the Discharger shall notify the Regional Water Board by 31 January. A copy of the notification shall be sent to appropriate local elected officials, local permitting agencies and the press. Within 120 days of the notification, the Discharger shall submit a technical report showing how it will prevent flow volumes from exceeding capacity or how it will increase capacity to handle the larger flows. The Regional Water Board may extend the time for submitting the report.

m. The Discharger shall submit technical reports as directed by the Executive Officer. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code, sections 6735, 7835, and 7835.1. To demonstrate compliance with Title 16, CCR, sections 415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.

n. Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Regional Water Board and USEPA.

o. The Discharger shall conduct analysis on any sample provided by USEPA as part of the Discharge Monitoring Quality Assurance (DMQA) program. The results of any such analysis shall be submitted to USEPA's DMQA manager.

p. Effluent samples shall be taken downstream of the last addition of wastes to the treatment or discharge works where a representative sample may be obtained prior to mixing with the receiving waters. Samples shall be collected at such a point and in such a manner to ensure a representative sample of the discharge.

q. All monitoring and analysis instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary, at least yearly, to ensure their continued accuracy.

r. The Discharger shall file with the Regional Water Board technical reports on self-monitoring performed according to the detailed specifications contained in the Monitoring and Reporting Program attached to this Order.

s. The results of all monitoring required by this Order shall be reported to the Regional Water Board, and shall be submitted in such a format as to allow direct comparison with the limitations and requirements of this Order. Unless otherwise specified, discharge flows shall be reported in terms of the monthly average and the daily maximum discharge flows.

t. The Regional Water Board is authorized to enforce the terms of this permit under several provisions of the CWC, including, but not limited to, sections 13385, 13386, and 13387.

u. For POTWs, prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a decrease of flow in any portion of a watercourse, the Discharger must file a petition with the State Water Board, Division of Water Rights, and receive approval for such a change. (CWC section 1211).

v. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, maximum daily effluent limitation, 1-hour average effluent limitation, or receiving water limitation contained in this Order, the Discharger shall notify the Regional Water Board by telephone (916) 464-3291 within 24 hours of having knowledge of such noncompliance, and shall confirm this notification in writing within five days, unless the Regional Water Board waives confirmation. The written notification shall include the information required by Attachment D, Section V.E.1 [40 CFR section 122.41(l)(6)(i)].

B. Monitoring and Reporting Program (MRP) Requirements

1. The Discharger shall comply with the MRP, and future revisions thereto, in Attachment E of this Order.

C. Special Provisions

1. Reopener Provisions

a. This Order may be reopened for modification, or revocation and reissuance, as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are not limited to, fish tissue sampling, whole effluent toxicity, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. Additional requirements may be included in this Order as a result of the special condition monitoring data.

b. Conditions that necessitate a major modification of a permit are described in 40 CFR section 122.62, including:

   i. If new or amended applicable water quality standards are promulgated or approved pursuant to Section 303 of the CWA, or amendments thereto, this permit may be reopened and modified in accordance with the new or amended standards.

   ii. When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.

c. **Mercury.** If mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted, this Order shall be reopened and the interim mass effluent limitation modified (higher or lower) or an effluent concentration limitation imposed. If the Regional Water Board determines that a mercury offset program is feasible for Dischargers subject to a NPDES permit, then this Order may be reopened to reevaluate the interim mercury mass loading limitation(s) and the need for a mercury offset program for the Discharger.

d. Pollution Prevention Plan-not applicable.

e. **Whole Effluent Toxicity.** As a result of a Toxicity Reduction Evaluation (TRE), this Order may be reopened to include a chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if the State Water Board revises the SIP's toxicity control provisions that would require the establishment of numeric chronic toxicity effluent limitations, this Order may be reopened to include a numeric chronic toxicity effluent limitation based on the new provisions.

f. **Water Effects Ratios (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating CTR criteria for applicable priority pollutant inorganic constituents. In addition, default dissolved-to-total metal

translators have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations for cadmium, copper lead, nickel, silver, and zinc. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

g. **Constituent Study.** Within four months of initial operation of the treatment system for liquid mine waste for discharge to either land or water, the Discharger shall conduct a study fully characterizing the waste effluent and receiving waters. The study shall include analyses of the priority pollutants listed in the SIP (Attachment H) as well as any other waste constituents that have the potential to be in the effluent, including trace metals, hardness, salinity, explosives residue, and reagents used in the mineral recovery circuit or waste water treatment system. Prior to initiating such a study, the Discharger shall submit to the Regional Water Board a report fully describing how the study will be conducted, including the sample frequency and type, and analyses to be performed. If after review of the study results it is determined that the discharge has reasonable potential to cause or contribute to an exceedance of a water quality objective this Order may be reopened and effluent limitations added or adjusted for the subject constituents.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

a. Laboratory Methods For Analyses Of Flotation Reagents. Prior to operation of the water treatment plant, the Discharger shall provide information from the California certified laboratory selected to perform the analyses for the monitoring program constituents on the methodology for analyzed of the chemical reagents Methyl Isobutyl Carbinol and Potassium Amyl Xanthate will be analyzed, the method detection limits, quantification limits. If an appropriate methodology cannot be developed, then wastewater from the mill may not be passed through the water treatment plant, nor can it be discharged.

b. **Chronic Whole Effluent Toxicity.** For compliance with the Basin Plan's narrative toxicity objective, this Order requires the Discharger to conduct chronic whole effluent toxicity testing, as specified in the Monitoring and Reporting Program (Attachment E, Section V.). Furthermore, this Provision requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity. If the discharge exceeds the toxicity numeric monitoring trigger established in this Provision, the Discharger is required to initiate a Toxicity Reduction Evaluation (TRE), in accordance with an approved TRE Work Plan, and take actions to mitigate the impact of the discharge and prevent reoccurrence of toxicity. A TRE is a site-specific study conducted in a stepwise process to identify the source(s) of toxicity and the effective control measures for effluent toxicity. TREs are designed to identify the causative agents and sources of whole effluent toxicity, evaluate the effectiveness of the toxicity control options, and confirm the reduction in effluent toxicity. This

Provision includes requirements for the Discharger to develop and submit a TRE Work Plan and includes procedures for accelerated chronic toxicity monitoring and TRE initiation.

i. **Initial Investigative Toxicity Reduction Evaluation (TRE) Work Plan. Within 90 days of the effective date of this Order,** the Discharger shall submit to the Regional Water Board an Initial Investigative TRE Work Plan for approval by the Executive Officer. This should be a one to two page document including, at minimum:

   a) A description of the investigation and evaluation techniques that will be used to identify potential causes and sources of effluent toxicity, effluent variability, and treatment system efficiency;

   b) A description of the facility's methods of maximizing in-house treatment efficiency and good housekeeping practices, and a list of all chemicals used in operation of the facility; and

   c) A discussion of who will conduct the Toxicity Identification Evaluation, if necessary (i.e. an in-house expert or outside contractor).

ii. **Accelerated Monitoring and TRE Initiation.** When the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity monitoring, and the testing meets all test acceptability criteria, the Discharger shall initiate accelerated monitoring as required in the Accelerated Monitoring Specifications. WET testing results exceeding the monitoring trigger during accelerated monitoring demonstrates a pattern of toxicity and requires the Discharger to initiate a TRE to address the effluent toxicity.

iii. **Numeric Monitoring Trigger.** The numeric toxicity monitoring trigger is > **1 TUc** (where TUc = 100/NOEC). The monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to begin accelerated monitoring and initiate a TRE.

iv. **Accelerated Monitoring Specifications.** If the monitoring trigger is exceeded during regular chronic toxicity testing, within 14-days of notification by the laboratory of the test results, the Discharger shall initiate accelerated monitoring. Accelerated monitoring shall consist of four (4) chronic toxicity tests in a six-week period (i.e. one test every two weeks) using the species that exhibited toxicity. The following protocol shall be used for accelerated monitoring and TRE initiation:

   a) If the results of four (4) consecutive accelerated monitoring tests do not exceed the monitoring trigger, the Discharger may cease accelerated monitoring and resume regular chronic toxicity monitoring. However, notwithstanding the accelerated monitoring results, if there is adequate

evidence of a pattern of effluent toxicity, the Executive Officer may require that the Discharger initiate a TRE.

b) If the source(s) of the toxicity is easily identified (i.e. temporary plant upset), the Discharger shall make necessary corrections to the facility and shall continue accelerated monitoring until four (4) consecutive accelerated tests do not exceed the monitoring trigger. Upon confirmation that the effluent toxicity has been removed, the Discharger may cease accelerated monitoring and resume regular chronic toxicity monitoring.

c) If the result of any accelerated toxicity test exceeds the monitoring trigger, the Discharger shall cease accelerated monitoring and initiate a TRE to investigate the cause(s) of, and identify corrective actions to reduce or eliminate effluent toxicity. Within thirty (30) days of notification by the laboratory of the test results exceeding the monitoring trigger during accelerated monitoring, the Discharger shall submit a TRE Action Plan to the Regional Water Board including, at minimum:

1) Specific actions the Discharger will take to investigate and identify the cause(s) of toxicity, including TRE WET monitoring schedule;
2) Specific actions the Discharger will take to mitigate the impact of the discharge and prevent the recurrence of toxicity; and
3) A schedule for these actions.

Within sixty (60) days of notification by the laboratory of the test results, the Discharger shall submit to the Regional Water Board a TRE Work Plan for approval by the Executive Officer. The TRE Work Plan shall outline the procedures for identifying the source(s) of, and reducing or eliminating effluent toxicity. The TRE Work Plan must be developed in accordance with EPA guidance[2].

3. Best Management Practices and Pollution Prevention

a. **Salinity Source Control Program**. The Discharger shall develop and implement a Salinity Source Control program and update as necessary. The Discharger shall provide annual reports demonstrating reasonable progress in the reduction of salinity in its discharge to Scorpion and French Gulch. The annual reports shall be submitted in accordance with the Monitoring and Reporting Program (Attachment E, Section X.D.1)

4. Construction, Operation and Maintenance Specifications

a. **Construction and operation of water treatment system**. The waste water treatment system shall be constructed, installed and operated by personnel

[2] See Attachment F (Fact Sheet) Section VII.B.2.a. for a list of EPA guidance documents that must be considered in development of the TRE Workplan.

experienced win the specific technology being utilized. On-site personnel shall be specifically trained in the plant operations, maintenance, and emergency procedures in the event of a plant upset and their names and emergency phone numbers provided to the Regional Water board staff. Facilities shall be available to contain the effluent in the event the discharge cannot meet applicable discharge standards. A complete list of chemical reagents required for the treatment system shall be provided to the Regional Water Board prior to operation of the treatment system. All chemical reagents shall be placed in secondary containment to prevent their discharge to land or water. Any solids generated from the treatment system shall be disposed at an approved disposal site licensed to accept such waste.

b. **Closure and Post-Closure Maintenance.** Within six months of the adoption of this permit, the Discharger shall submit a plan for closure and post-closure maintenance for the mine discharges. The plans shall include

   i. A full description of the mine drainage discharges from adits either directly owned by the Discharger or adits where the Discharger had conducted mining operations, including rate of discharge and concentration of waste constituents,

   ii. A description of where each portal drainage originates and how the mining operation affected the discharge,

   iii. Full and complete underground maps, surveyed by a licensed land surveyor or professional civil engineer, which clearly show the underground workings, stopes, cross connections, mine adits, and direction of drainage of collected mine water. Historic information and maps shall be included with the current information,

   iv. A full description of how the Discharger plans to meet effluent limits for the mine discharges after mine operations have ceased. The description shall include details on treatment systems as necessary, documentation of their effectiveness under the physical and climate conditions expected at the site, including ability to adequately and consistently treat the effluent at the influent concentrations and flow rates,

   v. A description on how the closure of the mine will be maintained, including financial costs, personnel, etc., for as long as the discharge poses a threat to water quality,

   vi. Financial assurances, naming the Central Valley Regional Water Quality Control Board as the beneficiary of the assurances in the event the Discharger fails to meet its obligations in closure and post-closure maintenance. The Discharger shall adjust the cost annually to account for inflation and any changes in facility design, construction, or operation.

5. Special Provisions for Municipal Facilities (POTWs Only)-NOT APPLICABLE

6. Other Special Provisions

a. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Regional Water Board.

   To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, address and telephone number of the persons responsible for contact with the Regional Water Board and a statement. The statement shall comply with the signatory and certification requirements in the Federal Standard Provisions (Attachment D, Section V.B.) and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved in writing by the Executive Officer.

7. Compliance Schedules - NOT APPLICABLE

VII. COMPLIANCE DETERMINATION – NOT APPLICABLE

ATTACHMENT A – DEFINITIONS

Arithmetic Mean (μ), also called the average, is the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

Arithmetic mean = $\mu = \Sigma x / n$ where: Σx is the sum of the measured ambient water concentrations, and n is the number of samples.

Average Monthly Effluent Limitation (AMEL): the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWEL): the highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Best Practicable Treatment or Control (BPTC): BPTC is a requirement of State Water Resources Control Board Resolution 68-16 – "Statement of Policy with Respect to Maintaining High Quality of Waters in California" (referred to as the "Antidegradation Policy"). BPTC is the treatment or control of a discharge necessary to assure that, *"(a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained."* Pollution is defined in CWC Section 13050(l). In general, an exceedance of a water quality objective in the Basin Plan constitutes "pollution".

Bioaccumulative pollutants are those substances taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

Carcinogenic pollutants are substances that are known to cause cancer in living organisms.

Coefficient of Variation (*CV*) is a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

Daily Discharge: Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the

arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.

Detected, but Not Quantified (DNQ) are those sample results less than the RL, but greater than or equal to the laboratory's MDL.

Dilution Credit is the amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is calculated from the dilution ratio or determined through conducting a mixing zone study or modeling of the discharge and receiving water.

Effluent Concentration Allowance (ECA) is a value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the coefficient of variation for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as waste load allocation (WLA) as used in U.S. EPA guidance (Technical Support Document For Water Quality-based Toxics Control, March 1991, second printing, EPA/505/2-90-001).

Enclosed Bays means indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. Enclosed bays do not include inland surface waters or ocean waters.

Estimated Chemical Concentration is the estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the ML value.

Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuarine waters include~~d~~, but are not limited to, the Sacramento-San Joaquin Delta, as defined in Water Code section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

Inland Surface Waters are all surface waters of the State that do not include the ocean, enclosed bays, or estuaries.

Instantaneous Maximum Effluent Limitation: the highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous Minimum Effluent Limitation: the lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

Maximum Daily Effluent Limitation (MDEL) means the highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Median is the middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of measurements (n) is odd, then the median = $X_{(n+1)/2}$. If n is even, then the median = $(X_{n/2} + X_{(n/2)+1})/2$ (i.e., the midpoint between the $n/2$ and $n/2+1$).

Method Detection Limit (MDL) is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in title 40 of the Code of Federal Regulations, Part 136, Attachment B, revised as of July 3, 1999.

Minimum Level (ML) is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Mixing Zone is a limited volume of receiving water that is allocated for mixing with a wastewater discharge where water quality criteria can be exceeded without causing adverse effects to the overall water body.

Not Detected (ND) are those sample results less than the laboratory's MDL.

Ocean Waters are the territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. Discharges to ocean waters are regulated in accordance with the State Water Board's California Ocean Plan.

Persistent pollutants are substances for which degradation or decomposition in the environment is nonexistent or very slow.

Pollutant Minimization Program (PMP) means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The

goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Regional Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements.

Pollution Prevention means any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in Water Code section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State or Regional Water Board.

Reporting Level (RL) is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the Regional Water Board either from Appendix 4 of the SIP in accordance with section 2.4.2 of the SIP or established in accordance with section 2.4.3 of the SIP. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

Satellite Collection System is the portion, if any, of a sanitary sewer system owned or operated by a different public agency than the agency that owns and operates the wastewater treatment facility that a sanitary sewer system is tributary to.

Source of Drinking Water is any water designated as municipal or domestic supply (MUN) in a Regional Water Board Basin Plan.

Standard Deviation (σ) is a measure of variability that is calculated as follows:

$$\sigma = (\sum[(x - \mu)^2]/(n - 1))^{0.5}$$

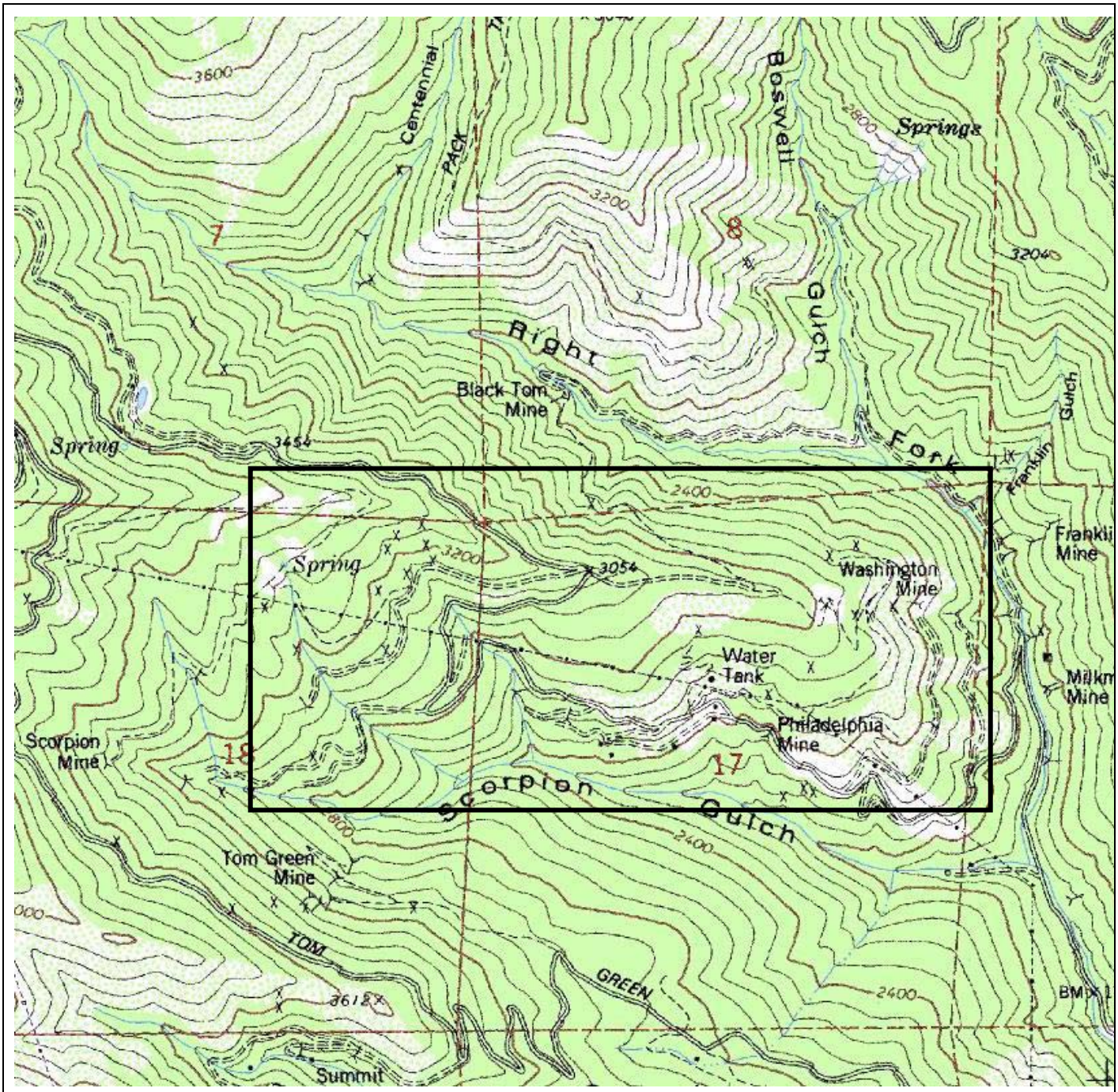
where:

x is the observed value;
μ is the arithmetic mean of the observed values; and
n is the number of samples.

Toxicity Reduction Evaluation (TRE) is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity,

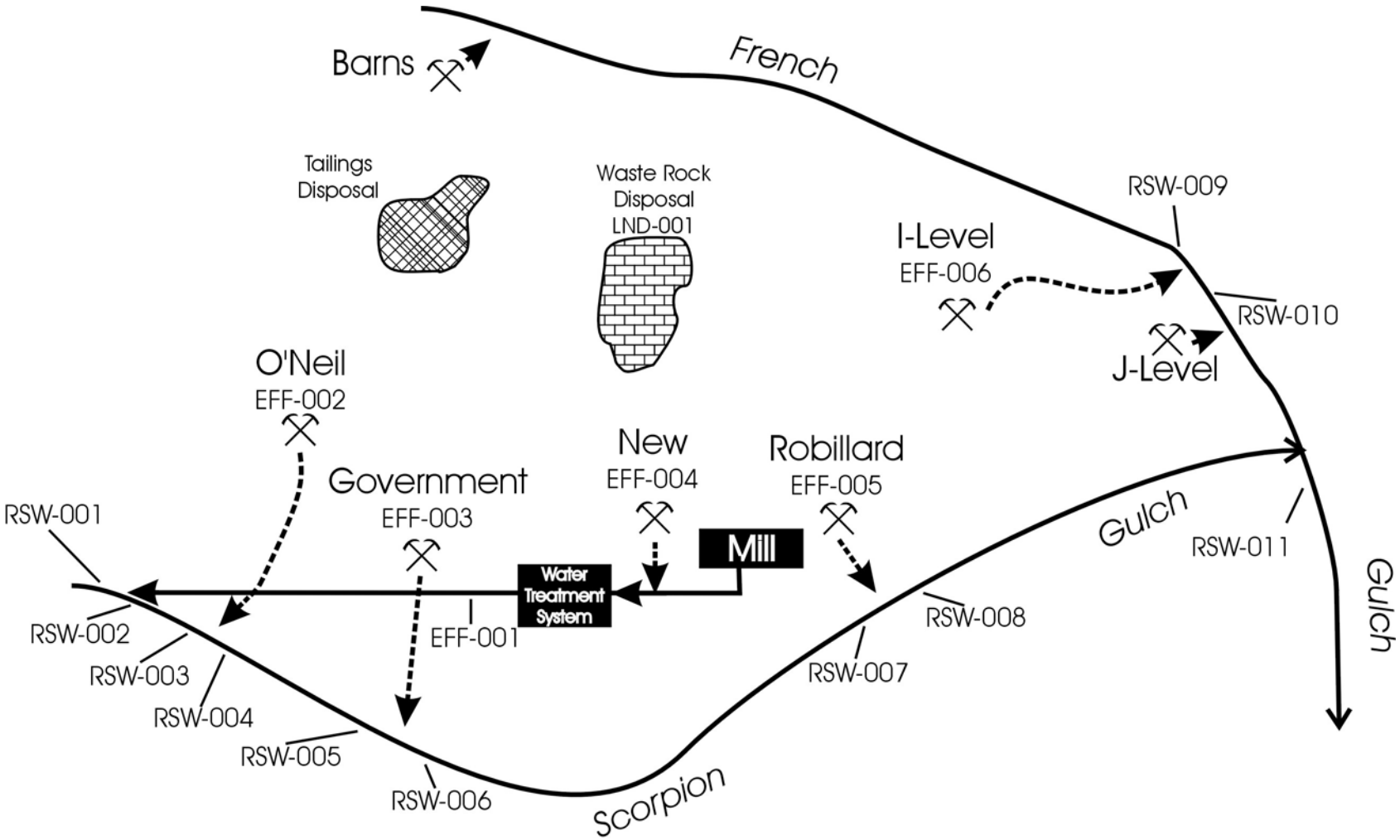
evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. (A TIE is a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

ATTACHMENT B – MAP



Drawing Reference:	SITE LOCATION MAP	
FRENCH GULCH, CALIF. U.S.G.S TOPOGRAPHIC MAP 7.5 MINUTE QUADRANGLE *1979* *Scale 1 inch = 1,625 ft*	BULLION RIVER GOLD CORP, FRENCH GULCH (NEVADA) MINING CORP, U.S. DEPT OF INTERIOR, BUREAU OF LAND MANAGEMENT WASHINGTON MINE SHASTA COUNTY	N W E S

ATTACHMENT C – FLOW SCHEMATIC



ATTACHMENT D –STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 C.F.R. § 122.41(a).)

2. The Discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 C.F.R. § 122.41(a)(1).)

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. (40 C.F.R. § 122.41(c).)

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. (40 C.F.R. § 122.41(d).)

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order. (40 C.F.R. § 122.41(e).)

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 C.F.R. § 122.41(g).)

2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 C.F.R. § 122.5(c).)

F. Inspection and Entry

The Discharger shall allow the Regional Water Board, State Water Board, United States Environmental Protection Agency (USEPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (40 C.F.R. § 122.41(i); Wat. Code, § 13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (40 C.F.R. § 122.41(i)(1));

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (40 C.F.R. § 122.41(i)(2));

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (40 C.F.R. § 122.41(i)(3)); and

4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (40 C.F.R. § 122.41(i)(4).)

G. Bypass

1. Definitions

   a. “Bypass” means the intentional diversion of waste streams from any portion of a treatment facility. (40 C.F.R. § 122.41(m)(1)(i).)

   b. “Severe property damage” means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 C.F.R. § 122.41(m)(1)(ii).)

2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 C.F.R. § 122.41(m)(2).)

3. Prohibition of bypass. Bypass is prohibited, and the Regional Water Board may take enforcement action against a Discharger for bypass, unless (40 C.F.R. § 122.41(m)(4)(i)):

    a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 C.F.R. § 122.41(m)(4)(i)(A));

    b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 C.F.R. § 122.41(m)(4)(i)(B)); and

    c. The Discharger submitted notice to the Regional Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 C.F.R. § 122.41(m)(4)(i)(C).)

4. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 C.F.R. § 122.41(m)(4)(ii).)

5. Notice

    a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass. (40 C.F.R. § 122.41(m)(3)(i).)

    b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). (40 C.F.R. § 122.41(m)(3)(ii).)

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 C.F.R. § 122.41(n)(1).)

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was

caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 C.F.R. § 122.41(n)(2).).

2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 C.F.R. § 122.41(n)(3)):

   a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 C.F.R. § 122.41(n)(3)(i));

   b. The permitted facility was, at the time, being properly operated (40 C.F.R. § 122.41(n)(3)(ii));

   c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 C.F.R. § 122.41(n)(3)(iii)); and

   d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 C.F.R. § 122.41(n)(3)(iv).)

3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 C.F.R. § 122.41(n)(4).)

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 C.F.R. § 122.41(f).)

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit. (40 C.F.R. § 122.41(b).)

C. Transfers

This Order is not transferable to any person except after notice to the Regional Water Board. The Regional Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 C.F.R. § 122.41(l)(3); § 122.61.)

III. STANDARD PROVISIONS – MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 C.F.R. § 122.41(j)(1).)

B. Monitoring results must be conducted according to test procedures under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503 unless other test procedures have been specified in this Order. (40 C.F.R. § 122.41(j)(4); § 122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS – RECORDS

A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by Part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Water Board Executive Officer at any time. (40 C.F.R. § 122.41(j)(2).)

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 C.F.R. § 122.41(j)(3)(i));

2. The individual(s) who performed the sampling or measurements (40 C.F.R. § 122.41(j)(3)(ii));

3. The date(s) analyses were performed (40 C.F.R. § 122.41(j)(3)(iii));

4. The individual(s) who performed the analyses (40 C.F.R. § 122.41(j)(3)(iv));

5. The analytical techniques or methods used (40 C.F.R. § 122.41(j)(3)(v)); and

6. The results of such analyses. (40 C.F.R. § 122.41(j)(3)(vi).)

C. Claims of confidentiality for the following information will be denied (40 C.F.R. § 122.7(b)):

1. The name and address of any permit applicant or Discharger (40 C.F.R. § 122.7(b)(1)); and

2. Permit applications and attachments, permits and effluent data. (40 C.F.R. § 122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Regional Water Board, State Water Board, or USEPA within a reasonable time, any information which the Regional Water Board, State Water Board, or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Regional Water Board, State Water Board, or USEPA copies of records required to be kept by this Order. (40 C.F.R. § 122.41(h); Wat. Code, § 13267.)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or USEPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 C.F.R. § 122.41(k).)

2. All permit applications shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. (40 C.F.R. § 122.22(a)(1).)

3. All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or USEPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

    a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 C.F.R. § 122.22(b)(1));

    b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of

equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 C.F.R. § 122.22(b)(2)); and

c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 C.F.R. § 122.22(b)(3).)

4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 C.F.R. § 122.22(c).)

5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

   "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." (40 C.F.R. § 122.22(d).)

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 C.F.R. § 122.22(l)(4).)

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 C.F.R. § 122.41(l)(4)(i).)

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board. (40 C.F.R. § 122.41(l)(4)(ii).)

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 C.F.R. § 122.41(l)(4)(iii).)

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date. (40 C.F.R. § 122.41(l)(5).)

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (40 C.F.R. § 122.41(l)(6)(i).)

2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 C.F.R. § 122.41(l)(6)(ii)):

   a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(A).)

   b. Any upset that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(B).)

3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 C.F.R. § 122.41(l)(6)(iii).)

F. Planned Changes

The Discharger shall give notice to the Regional Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when (40 C.F.R. § 122.41(l)(1)):

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 C.F.R. § 122.41(l)(1)(i)); or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 C.F.R. § 122.41(l)(1)(ii).)

3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 C.F.R.§ 122.41(l)(1)(iii).)

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Regional Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with General Order requirements. (40 C.F.R. § 122.41(l)(2).)

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above. (40 C.F.R. § 122.41(l)(7).)

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Water Board, State Water Board, or USEPA, the Discharger shall promptly submit such facts or information. (40 C.F.R. § 122.41(l)(8).)

VI. STANDARD PROVISIONS – ENFORCEMENT

A. The Regional Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Non-Municipal Facilities

Existing manufacturing, commercial, mining, and silvicultural Dischargers shall notify the Regional Water Board as soon as they know or have reason to believe (40 C.F.R. § 122.42(a)):

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 C.F.R. § 122.42(a)(1)):

    a. 100 micrograms per liter (µg/L) (40 C.F.R. § 122.42(a)(1)(i));

b. 200 µg/L for acrolein and acrylonitrile; 500 µg/L for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/L) for antimony (40 C.F.R. § 122.42(a)(1)(ii));

c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 C.F.R. § 122.42(a)(1)(iii)); or

d. The level established by the Regional Water Board in accordance with section 122.44(f). (40 C.F.R. § 122.42(a)(1)(iv).)

2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following “notification levels" (40 C.F.R. § 122.42(a)(2)):

a. 500 micrograms per liter (µg/L) (40 C.F.R. § 122.42(a)(2)(i));

b. 1 milligram per liter (mg/L) for antimony (40 C.F.R. § 122.42(a)(2)(ii));

c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 C.F.R. § 122.42(a)(2)(iii)); or

d. The level established by the Regional Water Board in accordance with section 122.44(f). (40 C.F.R. § 122.42(a)(2)(iv).)

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

Table of Contents

Attachment E – Monitoring and Reporting Program (MRP) E-1
I. General Monitoring Provisions E-1
II. Monitoring Locations E-2
III. Influent Monitoring Requirements E-3
A. Monitoring Location INF-001 ..... E-3
IV. Effluent Monitoring Requirements E-4
A. Monitoring Location EFF-001 ..... E-4
B. Monitoring Locations EFF-002, EFF-003, EFF-004, EFF-005, and EFF-006 ..... E-5
V. Whole Effluent Toxicity Testing Requirements E-7
VI. Land Discharge Monitoring Requirements E-10
A. Monitoring Location LND-001 ..... E-10
VII. Reclamation Monitoring Requirements. NOT APPLICABLE E-11
VIII. Receiving Water Monitoring Requirements – Surface Water and Groundwater E-11
A. Monitoring Location RSW-001 and RSW-002 ..... E-11
B. Monitoring Location RSW-003, RSW-004, RSW-005, RSW-006, RSW-007, RSW-008, RSW-009 and RSW-010 ..... E-12
IX. Other Monitoring Requirements – not applicable E-13
X. Reporting Requirements E-13
A. General Monitoring and Reporting Requirements E-13
B. Self Monitoring Reports (SMRs) E-14
C. Discharge Monitoring Reports (DMRs) – NOT APPLICABLE E-16
D. Other Reports E-16

List of Tables

Table E-1. Monitoring Station Locations E-2
Table E-2. Influent Monitoring E-3
Table E-3. Effluent Monitoring EFF-001 ..... E-4
Table E-4. Effluent Monitoring EFF-002 through EFF-006 ..... E-6
Table E-5. Chronic Toxicity Testing Dilution Series E-9
Table E-6a. Land Discharge Monitoring Requirements at LND-001 ..... E-10
Table E-8a. Receiving Water Monitoring Requirements at RSW-001 and RSW-002 ..... E-11
Table E-8b. Receiving Water Monitoring Requirements E-12
Table E-9. Monitoring Periods and Reporting Schedule E-16
Table E-10. Reporting Requirements for Special Provisions Progress Reports E-16

ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

The Code of Federal Regulations section 122.48 requires that all NPDES permits specify monitoring and reporting requirements. Water Code Sections 13267 and 13383 also authorize the Regional Water Quality Control Board (Regional Water Board) to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements, which implement the federal and state regulations.

I. GENERAL MONITORING PROVISIONS

A. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring locations specified below and, unless otherwise specified, before the monitored flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring locations shall not be changed without notification to and the approval of this Regional Water Board.

B. Chemical, bacteriological, and bioassay analyses shall be conducted at a laboratory certified for such analyses by the State Department of Health Services. In the event a certified laboratory is not available to the Discharger, analyses performed by a noncertified laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program must be kept in the laboratory and shall be available for inspection by Regional Water Board staff. The Quality Assurance-Quality Control Program must conform to USEPA guidelines or to procedures approved by the Regional Water Board.

C. All analyses shall be performed in a laboratory certified to perform such analyses by the California Department of Health Services. Laboratories that perform sample analyses shall be identified in all monitoring reports.

D. Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year to ensure continued accuracy of the devices.

E. Monitoring results, including noncompliance, shall be reported at intervals and in a manner specified in this Monitoring and Reporting Program.

II. MONITORING LOCATIONS

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order. The monitoring locations at each adit shall be established immediately outside the adit entrance:

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description (include Latitude and Longitude when available)
-	INF-001	Combined Influent to Water Treatment System
001	EFF-001	Effluent from Water Treatment System downstream from the last connection through which treated effluent or any other discharge may enter the outfall, prior to discharge to the receiving water.
002	EFF-002	Discharge from O'Neal Adit
003	EFF-003	Discharge from Government Adit
004	EFF-004	Discharge from New Adit
005	EFF-005	Discharge from Robillard Adit
006	EFF-006	Discharge from I-Level Adit
007	LND-001	Land Disposal Area
	RSW-001	Scorpion Gulch 20 feet up stream from where Discharge Point 001 (Water Treatment System)s
	RSW-002	Scorpion Gulch 100 feet down stream from where Discharge Point 001(Water Treatment System)
	RSW-003	Scorpion Gulch 20 feet upstream of drainage leading from Discharge Point 002 (O'Neal Adit)
	RSW-004	Scorpion Gulch 100 feet down stream of drainage leading from Discharge Point 002 (O'Neal Adit)
	RSW-005	Scorpion Gulch 20 feet up stream of drainage leading from Discharge Point 003 (Government Adit)
	RSW-006	Scorpion Gulch 100 feet down stream of drainage leading from Discharge Point 003 (Government Adit)
	RSW-007	Scorpion Gulch 20 feet up stream of drainage leading from Discharge Point 005 (Robillard Adit)
	RSW-008	Scorpion Gulch 100 feet down stream of drainage leading from Discharge Point 005 (Robillard Adit)
	RSW-009	French Gulch 20 feet upstream of drainage leading from Discharge Point 006 (I-Level Adit)
	RSW-010	French Gulch 100 feet down stream of drainage leading from Discharge Point 006 (I-Level Adit)
	RSW-011	French Gulch 200 feet down stream of confluenc with Scorpion Gulch

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Location INF-001.

1. The Discharger shall monitor each the combined waste stream influent to the Water Treatment System at INF-001 as follows:

Table E-2. Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	mgd	Meter	Continuous	
Antimony, Total Recoverable	µg/L	Grab	Quarterly [1,2]	[3]
Arsenic, Total Recoverable	µg/L	Grab	Quarterly [1,2]	[3]
Cadmium, Total Recoverable	µg/L	Grab	Quarterly [1,2]	[3]
Chromium, Total Recoverable	µg/L	Grab	Quarterly [1,2]	[3]
Cobalt, Total Recoverable	µg/L	Grab	Quarterly [1,2]	[3]
Copper, Total Recoverable	µg/L	Grab	Quarterly [1,2]	[3]
Lead, Total Recoverable	µg/L	Grab	Quarterly [1,2]	[3]
Mercury, Total Recoverable	µg/L	Grab	Quarterly [1,2]	Method 1631[4]
Molybdenum, Total Recoverable	µg/L	Grab	Quarterly [1,2]	[3]
Nickel, Total Recoverable	µg/L	Grab	Quarterly [1,2]	[3]
Silver, Total Recoverable	µg/L	Grab	Quarterly [1,2]	[3]
Vanadium, Total Recoverable	µg/L	Grab	Quarterly [1,2]	[3]
Zinc, Total Recoverable	µg/L	Grab	Quarterly [1,2]	[3]
Ammonia Nitrogen, Total (as N)[5]	mg/L	Grab	Quarterly [1,2]	[3]
BOD	mg/L		Quarterly [1,2]	[3]
Electrical Conductivity @ 25 C[6]	µmohs/cm	Grab	Quarterly [1,2]	[3]
Nitrate + Nitrite Nitrogen (as N)	mg/L	Grab	Quarterly [1,2]	[3]
Nitrite (as N)	mg/L	Grab	Quarterly [1,2]	[3]
Oil and Grease	mg/L	Grab	Quarterly [1,2]	[3]
pH	standard units	Grab	Quarterly [1,2]	[3]
Total Dissolved Solids	mg/l	Grab	Quarterly [1,2]	[3]
Total Petroleum Hydrocarbons (Diesel)	µg/L	Grab	Quarterly [1,2]	[3]

[1] Quarterly samples shall be collected in January, April, July, and October of each year

[2] Samples shall be obtained concurrently with the effluent and receiving water samples.

[3] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136; for priority pollutants the methods must meet the lowest minimum levels (MLs) specified in Attachment 4 of the SIP, where no methods are specified for a given pollutant, by methods approved by this Regional Water Board or the State Water Board.

[4] Total mercury samples shall be taken using clean hands/dirty hands procedures, as described in USEPA method 1669: *Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels,* for collection of equipment

blanks (section 9.4.4.2), and shall be analyzed by USEPA method 1630/1631 (Revision E) with a method detection limit of 0.02 ng/L for methylmercury and 0.2 ng/L for total mercury.

[5] Monitoring for ammonia shall be concurrent with acute whole effluent toxicity monitoring. See Section V.A.1. Temperature and pH shall be recorded at the time of ammonia sample collection.

[6] A hand-held field meter may be used, provided the meter utilizes a USEPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

1. The Discharger shall monitor the discharge from the water treatment system at EFF-001 as follows for the parameters and at the frequency listed in Table E-3 below. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding Minimum Level. Effluent samples shall be taken concurrently with receiving surface water samples.

Table E-3. Effluent Monitoring EFF-001

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	mgd	Meter	Continuous	[1]
Temperature[2]	°F	Meter	Daily	[1]
Antimony, Total Recoverable	µg/L	Grab	Monthly	[1]
Arsenic, Total Recoverable	µg/L	Grab	Monthly	[1]
Cadmium, Total Recoverable	µg/L	Grab	Monthly	[1]
Chromium, Total Recoverable	µg/L	Grab	Monthly	[1]
Cobalt, Total Recoverable	µg/L	Grab	Monthly	[1]
Copper, Total Recoverable	µg/L	Grab	Monthly	[1]
Lead, Total Recoverable	µg/L	Grab	Monthly	[1]
Mercury, Total Recoverable	µg/L	Grab	Monthly	Method 1631[3]
Molybdenum, Total Recoverable	µg/L	Grab	Monthly	[1]
Nickel, Total Recoverable	µg/L	Grab	Monthly	[1]
Silver, Total Recoverable	µg/L	Grab	Monthly	[1]
Vanadium, Total Recoverable	µg/L	Grab	Monthly	[1]
Zinc, Total Recoverable	µg/L	Grab	Monthly	[1]
Ammonia Nitrogen, Total (as N)[4]	mg/L	Grab	Monthly	[1]
BOD	mg/L	Grab	Monthly	[1]
Electrical Conductivity @ 25 C[5]	µmohs/cm	Grab	Monthly	[1]
Hardness (as $CaCO_3$)[6]	mg/l	Grab	Monthly	[1]
Nitrate + Nitrite Nitrogen (as N)	mg/L	Grab	Monthly	[1]
Nitrite (as N)	mg/L	Grab	Monthly	[1]
Oil and Grease	mg/L	Grab	Monthly	[1]

pH[5]	standard units	Grab	Monthly	[1]
Sulfate	mg/l	Grab	Monthly	[2]
Total Dissolved Solids	mg/l	Grab	Monthly	[1]
Total Petroleum Hydrocarbons (Diesel)	µg/L	Grab	Monthly	[1]
Methyl Isobutyl Carbinol[7]	µg/L	Grab	Monthly	[1]
Potassium Amyl Xanthate[7]	µg/L	Grab	Monthly	[1]
Other Priority Pollutants[8,9]	µg/L	Grab	[8]	[1]

[1] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136; for priority pollutants the methods must meet the lowest minimum levels (MLs) specified in Attachment 4 of the SIP, where no methods are specified for a given pollutant, by methods approved by this Regional Water Board or the State Water Board.

[2] Effluent Temperature monitoring shall be at the Outfall location.

[3] Total mercury samples shall be taken using clean hands/dirty hands procedures, as described in USEPA method 1669: *Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels,* for collection of equipment blanks (section 9.4.4.2), and shall be analyzed by USEPA method 1630/1631 (Revision E) with a method detection limit of 0.02 ng/L for methylmercury and 0.2 ng/L for total mercury.

[4] Monitoring for ammonia shall be concurrent with acute whole effluent toxicity monitoring. See Section V.A.1. Temperature and pH shall be recorded at the time of ammonia sample collection.

[5] A hand-held field meter may be used, provided the meter utilizes a USEPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.

[6] Hardness samples shall be collected concurrently with metals samples.

[7] Samples shall be obtained when effluent from the mill is discharged to the water treatment system. If no discharge from the mill occurs during the month, then the samples must be collected during the last day of the monitoring period.

[8] For priority pollutant constituents with effluent limitations, detection limits shall be below the effluent limitations. If the lowest minimum level (ML) published in Appendix 4 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Plan or SIP) is not below the effluent limitation, the detection limit shall be the lowest ML. For priority pollutant constituents without effluent limitations, the detection limits shall be equal to or less than the lowest ML published in Appendix 4 of the SIP.

[9] Priority pollutants shall be sampled once during the third year following the date of permit adoption and shall be conducted concurrently with effluent and up stream receiving water monitoring (see Section VIII.A below) for hardness (as $CaCO_3$) and pH

B. Monitoring Locations EFF-002, EFF-003, EFF-004, EFF-005, and EFF-006

1. The Discharger shall monitor mine drainage from each of the portals at locations EFF-002, EFF-003, EFF-004, EFF-005, and EFF-006 for the parameters and at the frequencies listed in Table E-4 below. Flow measuring weirs or other measuring devices shall be placed in the discharge immediately within or as close to the mine adit as possible and before the discharge is able to infiltrate into the subsurface during low flow periods. Samples and flow measurements shall be taken regardless if the discharge enters surface waters directly. If a treatment system is constructed for the effluent from a given portal, then effluent from the treatment system shall be monitored for the parameters and at the frequency listed below. Effluent samples shall be taken concurrently with receiving surface water samples.

Table E-4. Effluent Monitoring EFF-002 through EFF-006

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	mgd	Measure	Monthly[1]	[2]
Antimony, Total Recoverable	µg/L	Grab	Monthly[1]	[2]
Arsenic, Total Recoverable	µg/L	Grab	Monthly[1]	[2]
Cadmium, Total Recoverable	µg/L	Grab	Monthly[1]	[2]
Chromium, Total Recoverable	µg/L	Grab	Monthly[1]	[2]
Cobalt, Total Recoverable	µg/L	Grab	Monthly[1]	[2]
Copper, Total Recoverable	µg/L	Grab	Monthly[1]	[2]
Lead, Total Recoverable	µg/L	Grab	Monthly[1]	[2]
Mercury, Total Recoverable	µg/L	Grab	Monthly[1]	Method 1631[3]
Molybdenum, Total Recoverable	µg/L	Grab	Monthly[1]	[2]
Nickel, Total Recoverable	µg/L	Grab	Monthly[1]	[2]
Silver, Total Recoverable	µg/L	Grab	Monthly[1]	[2]
Vanadium, Total Recoverable	µg/L	Grab	Monthly[1]	[2]
Zinc, Total Recoverable	µg/L	Grab	Monthly[1]	[2]
Electrical Conductivity @ 25 C[4]	µmohs/cm	Grab	Monthly[1]	[2]
pH[4]	standard units	Grab	Monthly[1]	[2]
Sulfate	mg/l	Grab	Monthly[1]	[2]
Total Dissolved Solids	mg/l	Grab	Monthly[1]	[2]
Hardness (as $CaCO_3$)	mg/l	Grab	Monthly[1]	[2]

[1] Samples shall be collected monthly for the first year and quarterly thereafter

[2] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136; for priority pollutants the methods must meet the lowest minimum levels (MLs) specified in Attachment 4 of the SIP, where no methods are specified for a given pollutant, by methods approved by this Regional Water Board or the State Water Board.

[3] Total mercury samples shall be taken using clean hands/dirty hands procedures, as described in USEPA method 1669: *Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels,* for collection of equipment blanks (section 9.4.4.2), and shall be analyzed by USEPA method 1630/1631 (Revision E) with a method detection limit of 0.02 ng/L for methylmercury and 0.2 ng/L for total mercury.

[4] A hand-held field meter may be used, provided the meter utilizes a USEPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

A. **Acute Toxicity Testing.** The Discharger shall conduct acute toxicity testing on the discharge from the water treatment system and any other treatment system constructed to treat discharges from the Facility, including mine drainage from adits, to determine whether the effluent is contributing acute toxicity to the receiving water. The Discharger shall meet the following acute toxicity testing requirements:

1. *Monitoring Frequency* – the Discharger shall perform acute toxicity testing in March and September of the first year and annually in September thereafter concurrent with effluent ammonia sampling.

2. *Sample Types* – For static non-renewal and static renewal testing, the samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring location EFF-001 and the effluent from and other treatment system installed to collect and treat discharges from EFF-002 through EFF-006.

3. *Test Species* – Test species shall be fathead minnows (*Pimephales promelas*).

4. *Methods* – The acute toxicity testing samples shall be analyzed using EPA-821-R-02-012, Fifth Edition. Temperature, total residual chlorine, and pH shall be recorded at the time of sample collection. No pH adjustment may be made unless approved by the Executive Officer.

5. *Test Failure* – If an acute toxicity test does not meet all test acceptability criteria, as specified in the test method, the Discharger must re-sample and re-test as soon as possible, not to exceed 7 days following notification of test failure.

B. **Chronic Toxicity Testing**. The Discharger shall conduct three species chronic toxicity testing on the discharge from the water treatment system and any other treatment system constructed to treat discharges from the Facility, including mine drainage from adits, to determine whether the effluent is contributing chronic toxicity to the receiving water. The Discharger shall meet the following chronic toxicity testing requirements:

1. *Monitoring Frequency* – the Discharger shall perform semi-annually in March and September for the first year and annually in September thereafter three species chronic toxicity testing.

2. *Sample Types* – Effluent samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring location EFF-001 as identified in the Monitoring and Reporting Program and the effluent from and other treatment system installed to collect and treat discharges from EFF-002 through EFF-006. The receiving water control shall be a grab sample obtained from the upstream receiving surface water upstream sampling location RSW-001, as identified in the Monitoring and Reporting Program.

3. *Sample Volumes* – Adequate sample volumes shall be collected to provide renewal water to complete the test in the event that the discharge is intermittent.

4. *Test Species* – Chronic toxicity testing measures sublethal (e.g. reduced growth, reproduction) and/or lethal effects to test organisms exposed to an effluent compared to that of the control organisms. The Discharger shall conduct chronic toxicity tests with:

   - The cladoceran, water flea, *Ceriodaphnia dubia* (survival and reproduction test);
   - The fathead minnow, *Pimephales promelas* (larval survival and growth test); and
   - The green alga, *Selenastrum capricornutum* (growth test).

5. *Methods* – The presence of chronic toxicity shall be estimated as specified in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition,* EPA/821-R-02-013, October 2002.

6. *Reference Toxicant* – As required by the SIP, all chronic toxicity tests shall be conducted with concurrent testing with a reference toxicant and shall be reported with the chronic toxicity test results.

7. *Dilutions* – The chronic toxicity testing shall be performed using 100% effluent and two controls. If toxicity is found in any effluent test, the Discharger must immediately retest using the dilution series identified in Table E-5, below. The receiving water control shall be used as the diluent (unless the receiving water is toxic).

8. *Test Failure* –The Discharger must re-sample and re-test as soon as possible, but no later than fourteen (14) days after receiving notification of a test failure. A test failure is defined as follows:

   a. The reference toxicant test or the effluent test does not meet all test acceptability criteria as specified in the *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA/821-R-02-013, October 2002 (Method Manual), and its subsequent amendments or revisions; or

   b. The percent minimum significant difference (PMSD) measured for the test exceeds the upper PMSD bound variability criterion in Table 6 on page 52 of the Method Manual. (A retest is only required in this case if the test results do not exceed the monitoring trigger specified in Special Provisions VI.C.2.a.iii.

Table E-5. Chronic Toxicity Testing Dilution Series

Sample	Dilutions (%)					Controls	
	100	75	50	25	12.5	Receiving Water	Laboratory Water
% Effluent	100	75	50	25	12.5	0	0
% Receiving Water	0	25	50	75	87.5	100	0
% Laboratory Water	0	0	0	0	0	0	100

C. **WET Testing Notification Requirements**. The Discharger shall notify the Regional Water Board within 24-hrs after the receipt of test results exceeding the monitoring trigger during regular or accelerated monitoring, or an exceedance of the acute toxicity effluent limitation.

D. **WET Testing Reporting Requirements**. All toxicity test reports shall include the contracting laboratory's complete report provided to the Discharger and shall be in accordance with the appropriate "Report Preparation and Test Review" sections of the method manuals. At a minimum, whole effluent toxicity monitoring shall be reported as follows:

1. **Chronic WET Reporting.** Regular chronic toxicity monitoring results shall be reported to the Regional Water Board within 30 days following completion of the test, and shall contain, at minimum:

   a. The results expressed in TUc, measured as 100/NOEC, and also measured as $100/LC_{50}$, $100/EC_{25}$, $100/IC_{25}$, and $100/IC_{50}$, as appropriate.

   b. The statistical methods used to calculate endpoints;

   c. The statistical output page, which includes the calculation of the percent minimum significant difference (PMSD);

   d. The dates of sample collection and initiation of each toxicity test; and

   e. The results compared to the numeric toxicity monitoring trigger.

   Additionally, the monthly discharger self-monitoring reports shall contain an updated chronology of chronic toxicity test results expressed in TUc, and organized by test species, type of test (survival, growth or reproduction), and monitoring frequency, i.e., either quarterly, monthly, accelerated, or TRE. (Note: items a through c, above, are only required when testing is performed using the full dilution series.)

2. **Acute WET Reporting.** Acute toxicity test results shall be submitted with the monthly discharger self-monitoring reports and reported as percent survival.

3. **TRE Reporting.** Reports for Toxicity Reduction Evaluations shall be submitted in accordance with the schedule contained in the Discharger's approved TRE Work Plan.

4. **Quality Assurance (QA).** The Discharger must provide the following information for QA purposes (If applicable):
   a. Results of the applicable reference toxicant data with the statistical output page giving the species, NOEC, LOEC, type of toxicant, dilution water used, concentrations used, PMSD, and dates tested.
   b. The reference toxicant control charts for each endpoint, which include summaries of reference toxicant tests performed by the contracting laboratory.
   c. Any information on deviations or problems encountered and how they were dealt with.

VI. LAND DISCHARGE MONITORING REQUIREMENTS

A. Monitoring Location LND-001

1. The Discharger shall monitor mine drainage and any other waste water applied to land at LND-001 for the parameters and at the frequency listed below. If there is no land disposal during the month, then no samples are required and the monitoring report shall clearly state that no discharge has occurred.

Table E-6a. Land Discharge Monitoring Requirements at LND-001

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	mgd	Measure	Monthly[1]	[2]
Antimony, Total Recoverable	µg/L	Grab	Monthly[1]	[2]
Arsenic, Total Recoverable	µg/L	Grab	Monthly[1]	[2]
Cadmium, Total Recoverable	µg/L	Grab	Monthly[1]	[2]
Chromium, Total Recoverable	µg/L	Grab	Monthly[1]	[2]
Cobalt, Total Recoverable	µg/L	Grab	Monthly[1]	[2]
Copper, Total Recoverable	µg/L	Grab	Monthly[1]	[2]
Lead, Total Recoverable	µg/L	Grab	Monthly[1]	[2]
Mercury, Total Recoverable	µg/L	Grab	Monthly[1]	Method 1631[3]
Molybdenum, Total Recoverable	µg/L	Grab	Monthly[1]	[2]
Nickel, Total Recoverable	µg/L	Grab	Monthly[1]	[2]
Silver, Total Recoverable	µg/L	Grab	Monthly[1]	[2]
Vanadium, Total Recoverable	µg/L	Grab	Monthly[1]	[2]
Zinc, Total Recoverable	µg/L	Grab	Monthly[1]	[2]
Electrical Conductivity @ 25 C[4]	µmohs/cm	Grab	Monthly[1]	[2]
pH[4]	standard units	Grab	Monthly[1]	[2]
Total Dissolved Solids	mg/l	Grab	Monthly[1]	[2]
Hardness (as $CaCO_3$)	mg/l	Grab	Monthly[1]	[2]

[1] Samples shall be collected monthly for the first year and quarterly thereafter

[2] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136; for priority pollutants the methods must meet the lowest minimum levels (MLs) specified in Attachment 4 of the SIP, where no methods are specified for a given pollutant, by methods approved by this Regional Water Board or the State Water Board.

[3] Total mercury samples shall be taken using clean hands/dirty hands procedures, as described in USEPA method 1669: *Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels,* for collection of equipment blanks (section 9.4.4.2), and shall be analyzed by USEPA method 1630/1631 (Revision E) with a method detection limit of 0.02 ng/L for methylmercury and 0.2 ng/L for total mercury.

[4] A hand-held field meter may be used, provided the meter utilizes a USEPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.

VII. RECLAMATION MONITORING REQUIREMENTS. NOT APPLICABLE

VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER

A. Monitoring Location RSW-001 and RSW-002

1. Surface water samples shall be taken concurrently with effluent samples. The Discharger shall monitor Scorpion Creek at RSW-001 and RSW-002 as follows:

Table E-8a. Receiving Water Monitoring Requirements at RSW-001 and RSW-002

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	mgd	Measure	Monthly	[1]
Temperature	^{o}F	Measure	Monthly	[1]
Antimony, Total Recoverable	µg/L	Grab	Monthly	[1]
Arsenic, Total Recoverable	µg/L	Grab	Monthly	[1]
Cadmium, Total Recoverable	µg/L	Grab	Monthly	[1]
Chromium, Total Recoverable	µg/L	Grab	Monthly	[1]
Cobalt, Total Recoverable	µg/L	Grab	Monthly	[1]
Copper, Total Recoverable	µg/L	Grab	Monthly	[1]
Lead, Total Recoverable	µg/L	Grab	Monthly	[1]
Mercury, Total Recoverable	µg/L	Grab	Monthly	Method1631[2]
Molybdenum, Total Recoverable	µg/L	Grab	Monthly	[1]
Nickel, Total Recoverable	µg/L	Grab	Monthly	[1]
Silver, Total Recoverable	µg/L	Grab	Monthly	[1]
Vanadium, Total Recoverable	µg/L	Grab	Monthly	[1]
Zinc, Total Recoverable	µg/L	Grab	Monthly	[1]
Electrical Conductivity @ 25 C[3]	µmohs/cm	Grab	Monthly	[1]
pH[4]	standard units	Grab	Monthly	[1]
Sulfate	mg/l	Grab	Monthly	[1]
Total Dissolved Solids	mg/l	Grab	Monthly	[1]
Hardness (as $CaCO_3$)	mg/l	Grab	Monthly	[1]

Methyl Isobutyl Carbinol[4]	µg/L	Grab	Monthly	[1]
Potassium Amyl Xanthate[4]	µg/L	Grab	Monthly	[1]

[1] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136; for priority pollutants the methods must meet the lowest minimum levels (MLs) specified in Attachment 4 of the SIP, where no methods are specified for a given pollutant, by methods approved by this Regional Water Board or the State Water Board.

[2] Total mercury samples shall be taken using clean hands/dirty hands procedures, as described in USEPA method 1669: *Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels,* for collection of equipment blanks (section 9.4.4.2), and shall be analyzed by USEPA method 1630/1631 (Revision E) with a method detection limit of 0.02 ng/L for methylmercury and 0.2 ng/L for total mercury.

[3] A hand-held field meter may be used, provided the meter utilizes a USEPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.

[4] Samples shall be obtained when effluent from the mill is discharged to the water treatment system. If no discharge from the mill occurs during the month, then the samples must be collected during the last day of the monitoring period.

B. Monitoring Location RSW-003, RSW-004, RSW-005, RSW-006, RSW-007, RSW-008, RSW-009 and RSW-010

1. Surface water samples shall be taken concurrently with effluent samples. The Discharger shall monitor Scorpion Gulch Creek and French Gulch Creek at RSW-003, RSW-004, RSW-005, RSW-006, RSW-007, RSW-008, RSW-009, and 010, as follows:

Table E-8b. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	gpd	Measure	Quarterly[1]	[2]
Temperature	°F	Measure	Quarterly[1]	[2]
Antimony, Total Recoverable	µg/L	Grab	Quarterly[1]	[2]
Arsenic, Total Recoverable	µg/L	Grab	Quarterly[1]	[2]
Beryllium	µg/L	Grab	Quarterly[1]	[2]
Cadmium, Total Recoverable	µg/L	Grab	Quarterly[1]	[2]
Chromium, Total Recoverable	µg/L	Grab	Quarterly[1]	[2]
Cobalt, Total Recoverable	µg/L	Grab	Quarterly[1]	[2]
Copper, Total Recoverable	µg/L	Grab	Quarterly[1]	[2]
Lead, Total Recoverable	µg/L	Grab	Quarterly[1]	[2]
Mercury, Total Recoverable	µg/L	Grab	Quarterly[1]	Method 1631[3]
Molybdenum, Total Recoverable	µg/L	Grab	Quarterly[1]	[2]
Nickel, Total Recoverable	µg/L	Grab	Quarterly[1]	[2]
Silver, Total Recoverable	µg/L	Grab	Quarterly[1]	[2]
Vanadium, Total Recoverable	µg/L	Grab	Quarterly[1]	[2]
Zinc, Total Recoverable	µg/L	Grab	Quarterly[1]	[2]
Electrical Conductivity @ 25 C[4]	µmohs/cm	Grab	Quarterly[1]	[2]

pH[4]	standard units	Grab	Quarterly[1]	[2]
Sulfate	mg/l	Grab	Quarterly[1]	[2]
Total Dissolved Solids	mg/l	Grab	Quarterly[1]	[2]
Hardness (as $CaCO_3$)	mg/l	Grab	Quarterly[1]	[2]

[1] Samples shall be collected in January, April, July, and October of each year

[2] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136; for priority pollutants the methods must meet the lowest minimum levels (MLs) specified in Attachment 4 of the SIP, where no methods are specified for a given pollutant, by methods approved by this Regional Water Board or the State Water Board.

[3] Total mercury samples shall be taken using clean hands/dirty hands procedures, as described in USEPA method 1669: *Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels,* for collection of equipment blanks (section 9.4.4.2), and shall be analyzed by USEPA method 1630/1631 (Revision E) with a method detection limit of 0.02 ng/L for methylmercury and 0.2 ng/L for total mercury.

[4] A hand-held field meter may be used, provided the meter utilizes a USEPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.

IX. OTHER MONITORING REQUIREMENTS – NOT APPLICABLE

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.

1. Upon written request of the Regional Water Board, the Discharger shall submit a summary monitoring report. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year(s).

2. **Compliance Time Schedules.** For compliance time schedules included in the Order, the Discharger shall submit to the Regional Water Board, on or before each compliance due date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Water Board by letter when it returns to compliance with the compliance time schedule.

3. The Discharger shall report to the Regional Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act of 1986.

4. **Reporting Protocols.** The Discharger shall report with each sample result the applicable Reporting Level (RL) and the current Method Detection Limit (MDL), as determined by the procedure in Part 136.

   The Discharger shall report the results of analytical determinations for the presence

of chemical constituents in a sample using the following reporting protocols:

a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

   For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (± a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.

d. Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from *extrapolation* beyond the lowest point of the calibration curve.

5. **Multiple Sample Data.** When determining compliance with an AMEL , AWEL, or MDEL for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

   a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

   b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

B. Self Monitoring Reports (SMRs)

1. At any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit Self-Monitoring Reports (SMRs) using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (http://www.waterboards.ca.gov/ciwqs/index.html). Until such

notification is given, the Discharger shall submit hard copy SMRs. The CIWQS Web site will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.

2. Monitoring results shall be submitted to the Regional Water Board by the **15th day** of the second month following sample collection. Quarterly and annual monitoring results shall be submitted by the **15th day of the second month following each calendar quarter, semi-annual period, and year**, respectively.

3. In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly whether the discharge complies with waste discharge requirements. The highest daily maximum for the month, monthly and weekly averages, and medians, and removal efficiencies (%) for BOD and Total Suspended Solids, shall be determined and recorded as needed to demonstrate compliance.

4. With the exception of flow, all constituents monitored on a continuous basis (metered), shall be reported as daily maximums, daily minimums, and daily averages; flow shall be reported as the total volume discharged per day for each day of discharge.

5. If the Discharger monitors any pollutant at the locations designated herein more frequently than is required by this Order, the results of such monitoring shall be included in the calculation and reporting of the values required in the discharge monitoring report form. Such increased frequency shall be indicated on the discharge monitoring report form.

6. A letter transmitting the self-monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the penalty of perjury statement by the Discharger, or the Discharger's authorized agent, as described in the Standard Provisions.

7. SMRs must be submitted to the Regional Water Board, signed and certified as required by the Standard Provisions (Attachment D), to the address listed below:

   Regional Water Quality Control Board
   Central Valley Region
   415 Knollcrest Dr, Suite 100
   Redding, CA 96002

8. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table E-9. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Continuous	**<Permit effective date>**	**All**	**Submit with monthly SMR**
Monthly	**<First day of calendar month following permit effective date or on permit effective date if that date is first day of the month>**	**1st day of calendar month through last day of calendar month**	**45 days from the end of the monitoring period**
Quarterly	**<Closest of January 1, April 1, July 1, or October 1 following (or on) permit effective date>**	**January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31**	**45 days from the end of the monitoring period**
Semiannually	**<Closest of January 1 or July 1 following (or on) permit effective date>**	**January 1 through June 30 July 1 through December 31**	**45 days from the end of the monitoring period**
Annually	**<January 1 following (or on) permit effective date>**	**January 1 through December 31**	**45 days from the end of the monitoring period**

C. Discharge Monitoring Reports (DMRs) – NOT APPLICABLE

D. Other Reports

1. **Progress Reports.** As specified in the compliance time schedules required in Special Provisions VI, progress reports shall be submitted in accordance with the following reporting requirements. At minimum, the progress reports shall include a discussion of the status of final compliance, whether the Discharger is on schedule to meet the final compliance date, and the remaining tasks to meet the final compliance date.

Table E-10. Reporting Requirements for Special Provisions Progress Reports

Special Provision	Reporting Requirements
Salinity Source Control Program and Goal (section VI.C.3.a.)	**1 June**, annually

2. Within **60 days** of permit adoption, the Discharger shall submit a report outlining minimum levels, method detection limits, and analytical methods for approval, with a goal to achieve detection levels below applicable water quality criteria. At a minimum, the Discharger shall comply with the monitoring requirements for CTR constituents as outlined in Section 2.3 and 2.4 of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California*, adopted 2 March 2000 by the State Water Resources Control Board. All peaks identified by analytical methods shall be reported.

3. **Annual Operations Report**. By **15 February** of each year, the Discharger shall submit a written report to the Executive Officer containing the following:

   a. The names and telephone numbers of persons to contact regarding the mine, mill, and water treatment plant for emergency and routine situations.

   b. A statement certifying when the flow meter(s) and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration.

   c. A statement certifying whether the current operation and maintenance manual and contingency plan, reflect the wastewater treatment plant as currently constructed and operated, and the dates when these documents were last revised and last reviewed for adequacy.

   d. Tabular and graphical summaries of the monitoring data obtained during the previous year for arsenic and copper at EFF-001 through EFF-007 and RSW-001 through and RSW-011. The report shall discuss the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.

ATTACHMENT F – FACT SHEET

Table of Contents

Attachment F – Fact Sheet F-3
I. Permit Information F-3
II. Facility Description F-4
A. Description of Wastewater Treatment or Controls F-5
B. Discharge Points and Receiving Waters F-6
C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data F-6
D. Compliance Summary F-7
E. Planned Changes F-7
III. Applicable Plans, Policies, and Regulations F-7
A. Legal Authority F-8
B. California Environmental Quality Act (CEQA) F-8
C. State and Federal Regulations, Policies, and Plans F-8
D. Impaired Water Bodies on CWA 303(d) List F-9
E. Other Plans, Polices and Regulations –NOT APPLICABLE F-10
IV. Rationale For Effluent Limitations and Discharge Specifications F-10
A. Discharge Prohibitions F-11
B. Technology-Based Effluent Limitations F-11
1. Scope and Authority F-11
2. Applicable Technology-Based Effluent Limitations F-12
C. Water Quality-Based Effluent Limitations (WQBELs) F-15
1. Scope and Authority F-15
2. Applicable Beneficial Uses and Water Quality Criteria and Objectives F-16
3. Determining the Need for WQBELs F-19
4. WQBEL Calculations F-34
5. Whole Effluent Toxicity (WET) F-39
D. Final Effluent Limitations F-40
1. Mass-based Effluent Limitations. F-40
2. Averaging Periods for Effluent Limitations. F-40
3. Satisfaction of Anti-Backsliding Requirements. F-40
4. Satisfaction of Antidegradation Policy F-41
E. Interim Effluent Limitations-Not Applicable F-43
F. Land Discharge Specifications F-43
G. Reclamation Specifications NOT APPLICABLE F-43
V. Rationale for Receiving Water Limitations F-43
A. Surface Water F-43
B. Groundwater-NOT APPLICABLE F-47
VI. Rationale for Monitoring and Reporting Requirements F-47
A. Influent Monitoring F-47
B. Effluent Monitoring F-47
C. Whole Effluent Toxicity Testing Requirements F-47
D. Receiving Water Monitoring F-48
1. Surface Water F-48
2. Groundwater –Not Applicable F-48

E. Other Monitoring Requirements F-48
VII. Rationale for Provisions F-48
A. Standard Provisions F-48
B. Special Provisions F-48
1. Reopener Provisions F-48
2. Special Studies and Additional Monitoring Requirements F-49
3. Best Management Practices and Pollution Prevention F-53
4. Construction, Operation, and Maintenance Specifications F-54
5. Special Provisions for Municipal Facilities (POTWs Only) - Not Applicable F-54
6. Other Special Provisions – Not Applicable F-54
7. Compliance Schedules – Not Applicable F-54
VIII. Public Participation F-54
A. Notification of Interested Parties F-54
B. Written Comments F-55
C. Public Hearing F-55
D. Waste Discharge Requirements Petitions F-55
E. Information and Copying F-56
F. Register of Interested Persons F-56
G. Additional Information F-56

List of Tables

Table F-1. Facility Information F-3
Table F-2. Historic Adit Discharge Data, Maximum Concentration F-6
Table F-3. Summary of Technology-based Effluent Limitations F-15
Table F-4. Salinity Water Quality Criteria/Objectives F-30
Table F-5 WQBEL Calculations for Cadmium F-35
Table F-6 WQBEL Calculations for Copper F-36
Table F-7 WQBEL Calculations for Lead F-36
Table F-8 WQBEL Calculations for Nickel F-37
Table F-9 WQBEL Calculations for Zinc F-37
Table F-10. Summary of Water Quality-based Effluent Limitations F-38
Table F-11. Summary of Final Effluent Limitations F-42

ATTACHMENT F – FACT SHEET

As described in section II of this Order, this Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for Dischargers in California. Only those sections or subsections of this Order that are specifically identified as "not applicable" have been determined not to apply to this Discharger. Sections or subsections of this Order not specifically identified as "not applicable" are fully applicable to this Discharger.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

Table F-1. Facility Information

WDID	
Discharger	Bullion River Gold Corporation, French Gulch (Nevada) Mining Corporation and U.S. Department of Interior, Bureau Of Land Management
Name of Facility	Washington Mine
Facility Address	10388 French Gulch Road
	French Gulch, CA 96033
	Shasta County
Facility Contact, Title and Phone	Gerhard Nel, President and Chief Executive Officer , Bullion River Gold Corp (530) 227-8691
Authorized Person to Sign and Submit Reports	Gerhard Nel, President and Chief Executive Officer, Bullion River Gold Corp.
Mailing Address	SAME
Billing Address	SAME
Type of Facility	Industrial (Gold Mine) SIC Code: 1041
Major or Minor Facility	Minor
Threat to Water Quality	Category 1
Complexity	Category A
Pretreatment Program	Not Applicable
Reclamation Requirements	Not Applicable
Facility Permitted Flow	0.432 mgd
Facility Design Flow	0.432 mgd
Watershed	French Gulch Hydrologic Subarea, Clear Creek Hydrologic Area, Clear Creek Hydrologic Unit
Receiving Water	Frunch Gulch and Scorpion Gulch, tributaries to Clear Creek
Receiving Water Type	Inland Surface Water

A. The Washington Mine complex (Hereafter Facility) includes a mill facility and hardrock underground gold workings. The Facility is partially owned by Bullion River Gold Corporation and operated by French Gulch (Nevada) Mining Corporation. The mine and mill are on both patented and unpatented claims. The unpatented land is Federal land administered by the U.S. Department of interior, Bureau of Land Management (BLM). Bullion River Gold Corporation, French Gulch (Nevada) Mining Corporation, the BLM are designated hereafter as the Discharger.

The U.S. Government, through the agency of the BLM, is the owner of a portion of the real property at which the discharge will occur. The BLM responsible for ensuring compliance with these requirements on land over which they administer, but Bullion River Gold Corporation and French Gulch (Nevada) Mining Corporation, are responsible for day-to-day operations and monitoring. Enforcement actions will be taken against the BLM (landowners) only in the event that enforcement actions against Bullion River Gold Corporation and French Gulch (Nevada) Mining Corporation are ineffective or would be futile, or that enforcement is necessary to protect public health or the environment. In addition, since the BLM is a public agency, enforcement actions will be taken against them only after they are given the opportunity to use their governmental powers promptly to remedy the waste discharge.

The Washington Mine is currently regulated by Waste Discharge Requirements Order No. 96-289 which do not allow for the discharge of wastes to surface waters. The mine also is covered by the General Permit For Discharge of Storm Water Associated With Industrial Activities to control storm water and erosion from the site.

For the purposes of this Order, references to the “discharger” or “permittee” in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

B. The Facility discharges wastewater from both new and old mine adits, some of which have not been actively worked for many years. During storm events, the discharge from these portals has the potential to reach Scorpion Gulch and French Gulch, waters of the United States. Scorpion Gulch and French Gulch are tributary to Clear Creek which enters Whiskeytown Lake, and from there is tributary to the Sacramento River.

C. The Discharger filed a report of waste discharge and submitted an application for new Waste Discharge Requirements (WDRs) and a National Pollutant Discharge Elimination System (NPDES) permit on in March 2007 to allow for the discharge of treated mine discharge water to surface waters. Supplemental information was requested on 19 October 2007 and again on June 2008. Additional Information was received on 5 May 2008, 24 July 2008, and 18 May 2009. Several site visits were conducted in 2007, 2008 and 2009 to observe operations and collect additional data to develop permit limitations and conditions.

II. FACILITY DESCRIPTION

The Washington Mine, an underground hardrock gold mine, was founded in 1852. The existing mill building was constructed in 1939. The project site consists of patented and unpatented claim blocks totaling 1,825 acres, of which 470 are patented. Surface rights to the unpatented claims are administered by the U.S. Department of Interior, BLM. The mine has operated intermittently during its history with numerous owners and operators. Several mine adits access the underground workings. The ownership of the property where each adit is located is a follows: The O'Neal Adit is owned by Bullion River Gold Corporation; the New, Robillard, Government, and I-level adits are owned by BLM. The Scorpion and J-Level Adits are significant contributers of metals to Scorpion Gulch and French Gulch, respectively and are owned by BLM. The mill facility is on property owned by BLM.

Ore and waste rock are removed from the underground mine with waste rock being placed in a designated, but currently unpermitted, disposal area. Ore is processed through a mill where the particle size is reduced and gold is separated with gravity jigs and finally through flotation cells. In the flotation cells, chemical reagents are added to allow the gold bearing particles to adhear or "float" on bubbles and are skimmed from the processing solution, which is recycled through the mineral recovery system. The spent material is dried through a filter screen and the resulting tailings are stockpiled adjacent to the mill until they can be transported to the tailings disposal site which is regulated under separate waste discharge requirements. The mill circuit is currently described as a closed loop system with no discharge. Reagents used in the mill site of concern include copper sulfate, methyl isobutyl carbinol, and potassium xanthate.

The underground workings act as drainage collection systems, collecting ground water which flows through the bedrock. The mining activities, including blasting and tunneling, resulting in fracturing of the bedrock and reducing particle size, exposing natural mineral deposits to water and oxygen that would not otherwise occur. This exposure can result in the mobilization of minerals which flow with the water either in a dissolved or suspended phase. The underground workings are generally designed to drain the collected water by gravity from the adits lowest in elevation in the particular section. At the Washington Mine complex, the O'Neal, Government, Robillard, and I-level adits drain by gravity. The water collected from the Main or "New" Adit is collected in a sump and pumped to the surface; however if it were not pumped, it would eventually flow out the I-level. This mine water commonly contains mineral constituents, either dissolved or suspended, that may impact surface and/or ground water quality.

A. Description of Wastewater Treatment or Controls

The proposed water treatment system at the mill site will consist of modular, skid mounted system(s) that include a bag filter to remove course particulates and a cartridge filter for finer material. The waste stream will then flow though a media filter to remove heavy oils and grease and a carbon filter to remove organics. Finally, the waste stream will be directed through several resin filters to remove metals, including copper and arsenic, and nitrates prior to discharge to Scorpion Gulch.

Influent to the system will consist of mine drainage water collected from the various adits which may contain elevated metals released from the naturally mineralized deposits being mined and nitrates from the blasting agents, and effluent from the mill which may contain metals and flotation reagents. Maximum effluent flow permitted is 300 gpm, however it is estimated actual flows will be less than 100 gpm.

B. Discharge Points and Receiving Waters

1. The Facility is located in Sections 8, 17, 18, T33N, R7W, MDB&M, as shown in Attachment B (Figure B-1), a part of this Order.

2. Treated wastewater is proposed to be discharged at Discharge Point 001 to Scorpion Gulch, a water of the United States *and a tributary to French Gulch, Clear Creek, Whiskeytown Lake, and the Sacramento River* at a point Latitude 40°, 42', 59" N and Longitude 122°, 41', 21" W. Scorpion Gulch is within the French Gulch Hydrologic Sub area (524.64) in the Clear Creek Hydrologic area. Mine adits at Discharge Points 002, 003, 004 and 005 also enter Scorpion Gulch. The mine adit discharge from Discharge Point 006 enters French Gulch.

C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

This is the first NPDES permit for the facility and no previous water treatment system has been operated. Data submitted by the Discharger include data on water quality discharging from various mine adits and are summarized below:

Table F-2. Historic Adit Discharge Data, Maximum Concentration

Parameter	O'Neil[1]	Government[1]	Main[1]	Robillard[1]	I-Level[1]	Barns[1]	Scorpion[1]	J-Level[2]
Antimony µg/L	<4	<4	47	6	23	<4	<4	<4
Arsenic µg/L	17	16	7750	1590	275	12	367	132
Beryllium µg/L	<1	<1	6	<1	<1	<1	<1	<1
Cadmium µg/L	<1	<1	21.4	2.2	2	<1	5	<1
Chromium (Total) µg/L	3	3	277	14	4	11	7	ND
Copper µg/L	2	4	221	25	16	15	27	ND
Lead µg/L	<3	<3	1740	6	7	<3	85	<3
Mercury µg/L	<0.07	<0.07	0.21	0.11	<0.07	<0.07	<0.07	<0.07
Nickel µg/L	3	55	265	37	7	ND	46	1
Silver µg/L	<1	<1	8	2	<1	2	1	2
Zinc µg/L	44	126	1380	202	193	29	234	16
pH (minimum)	4.88	7.76	6.71	7.56	4.31	5.14	7.72	-
Electrical Conductivity µmhos/cm	607	824	647	887	1239	559	1042	-
TDS Mg/L	374	441	140	518	796	354	329	-

[1] Information submitted in ROWD.

[2]Information obtained from samples collected by RWQCB staff on 15 April 2009.

D. Compliance Summary

On 24 June 2006, the Discharger spilled approximately 5 tons (4,409 gallons) of rock/tailings slurry, much which entered Scorpion Creek. The slurry was transported approximately 7.5 miles downstream to Whiskeytown Lake, a National Recreation Area, where recreational users, including swimmers, were evacuated.

The operators of the mill had been pumping mill tailings and waste rock via pipeline to an underground storage site. The pipeline, constructed of doubled walled Schedule 40 PVC pipe, was suspended above a steep slope with rope and wood braces and had broken, discharging the material down the slope and into surface waters. The pipeline had not been adequately engineered, nor was the underground storage of tailings and waste rock slurry allowed under the current waste discharge requirements. Most of the slurry was not susceptible to cleanup without significant damage to the benthic aquatic community in Scorpion Gulch and French Gulch.

Analyses of the slurry revealed arsenic concentrations 2,140 mg/kg, above the Hazardous Waste Total Threshold Limit Concentration of 500 mg/kg contained in Title 22 of the California Code of Regulations (CCR).

Water samples obtained during the spill upstream of the National Park Service domestic water supply at Whiskeytown Lake revealed concentrations of arsenic at 3.5 ug/l, below the Environmental Protection Agency MCL of 10 ug/l.

E. Planned Changes

Currently, discharge of mine drainage from the Scorpion, Barns, O'Neil, Government, New, Robillard, I-level and J-level adits is not regulated. These adit discharges contain appreciable metals which can adversely affect water quality. During the summer months, the adit discharges (with the exception of the New Adit where the mine water is pumped from a sump within the workings) are only a few gallons per minute and percolate back into the subsurface. However, during winter months when the ground in saturated and the local ground water is high, discharge volumes are higher and there is a high potential for this mine drainage to enter surface waters, including French Gulch and Scorpion Gulch. It is the intent of this Order to require all mine drainage water from the O'Neil, Government, New, Robillard, I-level adits to be collected and treated. Discharges from the Scorpion, Barns, and J-level adits will be addressed separately as they are not part of this operation. At the termination of mining operations, provisions must be included in the mine closure to assure the mine drainage discharges meet water quality objectives.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in this Order are based on the applicable plans, policies, and regulations identified in section II of the Limitations and Discharge Requirements

(Findings). This section provides supplemental information, where appropriate, for the plans, policies, and regulations relevant to the discharge.

A. Legal Authority

See Limitations and Discharge Requirements - Findings, Section II.C.

B. California Environmental Quality Act (CEQA)

See Limitations and Discharge Requirements - Findings, Section II.E.

C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plans**. The Regional Water Board adopted a *Water Quality Control Plan, Fourth Edition (Revised October 2007 2006), for the Sacramento and San Joaquin River Basins* (Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, State Water Board Resolution No. 88-63 requires that, with certain exceptions, the Regional Water Board assign the municipal and domestic supply use to water bodies that do not have beneficial uses listed in the Basin Plan. The beneficial uses of the Scorpion Gulch downstream of the discharge are municipal and domestic supply, agricultural irrigation, agricultural stock watering, hydropower generation, water contact recreation, other non-contact water recreation, warm freshwater aquatic habitat, cold freshwater aquatic habitat, warm spawning habitat, and wildlife habitat.

   The Basin Plan on page II-1.00 states: "*Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning…*" and with respect to disposal of wastewaters states that "...*disposal of wastewaters is [not] a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of beneficial uses.*"

   The federal CWA section 101(a)(2), states: "*it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983.*" Federal Regulations, developed to implement the requirements of the CWA, create a rebuttable presumption that all waters be designated as fishable and swimmable. Federal Regulations, 40 CFR sections 131.2 and 131.10, require that all waters of the State regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shell fish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. Section 131.3(e), 40 CFR, defines existing beneficial uses as those uses actually attained after November 28, 1975, whether or not they are included in the water quality standards. Federal Regulation, 40 CFR section 131.10 requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United

States.

2. **Antidegradation Policy.** Section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. As discussed in detail in this Fact Sheet (Attachment F, Section IV.D.4.) the discharge is consistent with the antidegradation provisions of 40 CFR section 131.12 and State Water Board Resolution 68-16.

3. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at title 40, Code of Federal Regulations section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed. Compliance with the Anti-Backsliding requirements is discussed in Section IV.D.3.

4. **Stormwater Requirements.** USEPA promulgated Federal Regulations for storm water on 16 November 1990 in 40 CFR Parts 122, 123, and 124. The NPDES Industrial Storm Water Program regulates storm water discharges from mining. Mining facilities are applicable industries under the storm water program and are obligated to comply with the Federal Regulations. This Facility has obtained a NPDES Industrial Storm Water Program.

5. ***Endangered Species Act.*** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

D. Impaired Water Bodies on CWA 303(d) List

1. Under Section 303(d) of the 1972 Clean Water Act, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On July 25, 2003 USEPA gave final approval to California's 2002 Section 303(d) List of Water Quality Limited Segments. The Basin Plan references this list of Water Quality

Limited Segments (WQLSs), which are defined as "…*those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 CFR 130, et seq.)*." The Basin Plan also states, "*Additional treatment beyond minimum federal standards will be imposed on dischargers to [WQLSs]. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment.*" Scorpion Gulch is not listed as a water quality limited segment.

2. **Total Maximum Daily Loads.** Scorpion Gulch is not listed as a water quality limited segment, and therefore no total maximum daily loads are applicable.

E. Other Plans, Polices and Regulations –NOT APPLICABLE

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

Effluent limitations and toxic and pretreatment effluent standards established pursuant to Sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and Guidelines), and 307 (Toxic and Pretreatment Effluent Standards) of the Clean Water Act (CWA) and amendments thereto are applicable to the discharge.

The Federal CWA mandates the implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state or federal law [33 U.S.C., § 1311(b)(1)(C); 40 CFR, § 122.44(d)(1)]. NPDES permits must incorporate discharge limits necessary to ensure that water quality standards are met. This requirement applies to narrative criteria as well as to criteria specifying maximum amounts of particular pollutants. Pursuant to Federal Regulations, 40 CFR Section 122.44(d)(1)(i), NPDES permits must contain limits that control all pollutants that "*are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality*." Federal Regulations, 40 CFR, §122.44(d)(1)(vi), further provide that "[w]*here a state has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits.*"

The CWA requires point source discharges to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations: 40 CFR §122.44(a) requires that permits include applicable technology-based limitations and standards, and 40 CFR §122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water where numeric water quality objectives have not been established. The Regional Water Board's Basin Plan, page IV-17.00, contains an implementation policy ("Policy for

Application of Water Quality Objectives" that specifies that the Regional Water Board "*will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives*." This Policy complies with 40 CFR §122.44(d)(1). With respect to narrative objectives, the Regional Water Board must establish effluent limitations using one or more of three specified sources, including (1) EPA's published water quality criteria, (2) a proposed state criterion (*i.e*., water quality objective) or an explicit state policy interpreting its narrative water quality criteria (*i.e*., the Regional Water Board's "Policy for Application of Water Quality Objectives")(40 CFR 122.44(d)(1)(vi) (A), (B) or (C)), or (3) an indicator parameter. The Basin Plan contains a narrative objective requiring that: "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*" (narrative toxicity objective). The Basin Plan requires the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, discoloration, toxic substances, radionuclides, or taste and odor producing substances that adversely affect beneficial uses. The Basin Plan states that material and relevant information, including numeric criteria, and recommendations from other agencies and scientific literature will be utilized in evaluating compliance with the narrative toxicity objective. The Basin Plan also limits chemical constituents in concentrations that adversely affect surface water beneficial uses. For waters designated as municipal, the Basin Plan specifies that, at a minimum, waters shall not contain concentrations of constituents that exceed Maximum Contaminant Levels (MCL) of CCR Title 22. The Basin Plan further states that, to protect all beneficial uses, the Regional Water Board may apply limits more stringent than MCLs.

A. Discharge Prohibitions

1. As stated in section I.G of Attachment D, Standard Provisions, this Order prohibits bypass from any portion of the treatment facility. Federal Regulations, 40 CFR 122.41 (m), define "bypass" as the intentional diversion of waste streams from any portion of a treatment facility. This section of the Federal Regulations, 40 CFR 122.41 (m)(4), prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property damage. In considering the Regional Water Board's prohibition of bypasses, the State Water Board adopted a precedential decision, Order No. WQO 2002-0015, which cites the Federal Regulations, 40 CFR 122.41(m), as allowing bypass only for essential maintenance to assure efficient operation.

B. Technology-Based Effluent Limitations

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1. Scope and Authority

The CWA requires that technology-based effluent limitations be established based on several levels of controls:

- Best practicable treatment control technology (BPT) represents the average of the best performance by plants within an industrial category or subcategory. BPT standards apply to toxic, conventional, and non-conventional pollutants.

- Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and non-conventional pollutants.

- Best conventional pollutant control technology (BCT) represents the control from existing industrial point sources of conventional pollutants including BOD, TSS, fecal coliform, pH, and oil and grease. The BCT standard is established after considering the "cost reasonableness" of the relationship between the cost of attaining a reduction in effluent discharge and the benefits that would result, and also the cost effectiveness of additional industrial treatment beyond BPT.

- New source performance standards (NSPS) represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to set limitations that represent state-of-the-art treatment technology for new sources.

The CWA requires USEPA to develop effluent limitations, guidelines and standards (ELGs) representing application of BPT, BAT, BCT, and NSPS. Section 402(a)(1) of the CWA and section 125.3 of the Code of Federal Regulations authorize the use of best professional judgment (BPJ) to derive technology-based effluent limitations on a case-by-case basis where ELGs are not available for certain industrial categories and/or pollutants of concern. Where BPJ is used, the permit writer must consider specific factors outlined in section 125.3.

2. Applicable Technology-Based Effluent Limitations

a. The Code of Federal Regulations (CFR) at 40 CFR §122.44(a) requires that permits include applicable technology-based limitations and standards. The Facility is an active underground gold mine with a mill for recovery of mineral values. This Order includes technology-based effluent limitations based on consideration of Effluent Limitations Guidelines and Standards for the Ore Mining and Dressing Point Source Category in 40 CFR Part 440, Subpart J—Copper, Lead, Zinc, Gold, Silver, and Molybdenum Ores Subcategory and Best Professional Judgment (BPJ) in accordance with 40 CFR §125.3.

   Effluent Limitations Guidelines and Standards for the Ore Mining and Dressing Point Source Category in 40 CFR Part 440, Subpart J—Copper, Lead, Zinc, Gold, Silver, and Molybdenum Ores Subcategory are applicable to discharges that include:

   i. Mines that produce copper, lead, zinc, gold, silver, or molybdenum bearing ores, or any combination of these ores from open-pit or underground operations other than placer deposits; and

ii. Mills that use the froth-flotation process alone or in conjunction with other processes, for the beneficiation of copper, lead, zinc, gold, silver, or molybdenum ores, or any combination of these ores.

"Mine" is defined in 40 CFR 440.132(g) as "an active mining area, including all land and property placed under, or used above the surface of such land, used in or resulting from the work of extracting metal ore or minerals from their natural deposits by any means or method, including secondary recovery of metal ore from refuse or other storage piles, wastes, or rock dumps and mill tailings derived from the mining, cleaning, or concentration of metal ores."

"Mine drainage" is defined in 40 CFR 440.132(h) as "any water drained, pumped, or siphoned from a mine".

The Washington Mine consists of land and property used in or resulting from the work of extracting metal ore or minerals, specifically gold, from their natural deposits by any means or method. The discharge from the various mine adits is water drained from the Washington Mine. Therefore, the discharge is mine drainage and Effluent Limitations Guidelines and Standards for the Ore Mining and Dressing Point Source Category in 40 CFR Part 440, Subpart J—Copper, Lead, Zinc, Gold, Silver, and Molybdenum Ores Subcategory apply. In addition, effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT) and the application of the best practicable control technology (BPT) are also applicable.

40 CFR 440.102 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology (BPT) states that "[e]xcept as provided in subpart L of this part and 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT): (a) The concentration of pollutants discharged in mine drainage from mines operated to obtain copper bearing ores, lead bearing ores, zinc bearing ores, gold bearing ores, or silver bearing ores, or any combination of these ores [from] open-pit or underground operations other than placer deposits shall not exceed:

Effluent characteristic	Effluent Limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Milligrams per liter	
TSS……..	30	20
Cu……	.30	.15
Zn……	1.5	.75
Pb……	.6	.3

Hg……	.002	.001
pH……	([1])	([1])

[1]Within the range of 6.0 to 9.0. ”

40 CFR 440.103 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT) states that “[e]xcept as provided in subpart L of this part and 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT): (a) The concentration of pollutants discharged in mine drainage from mines that produce copper, lead, zinc, gold, silver, or molybdenum bearing ores, or any combination of these ores from open-pit or underground operations other than placer deposits shall not exceed:

Effluent characteristic	Effluent Limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Milligrams per liter	
Cu……	0 .30	0 .15
Zn……	1.5	0 .75
Pb……	0.6	0 .3
Hg……	0 .002	0 .001
Cd……	0.10	0.05

b. Organic compounds including Total Petroleum Hydrocarbons in the diesel range (used in underground vehicles at the mine) may also enter the waste stream. As such, diesel from leaks and spills can enter the waste stream. Existing wastewater treatment technology, primarily utilizing activated carbon such as that proposed in the permit application, is capable of dependably removing these constituents to concentrations that are generally non-detectable by current analytical technology. Regional Water Board Order No. R5-2008-0085 (NPDES Permit No. CAG915001) *Waste Discharge Requirements for Discharge to Surface Waters of Groundwater from Cleanup of Petroleum Fuel Pollution*, established technology-based effluent limitations for a number of pollutants contained within petroleum fuels based on the current reporting levels for pollutants of concern. The current, commonly achieved reporting level for Total Petroleum Hydrocarbons in the diesel range is 50 µg/L.

c. The mill uses chemical reagents to recover the gold values from the ore. These reagents include the organic chemicals Methyl Isobutyl Carbinol and Potassium Amyl Xanthate. Although the milling process is a net user of water and no discharge to the treatment plant is expected, the Discharger has requested the option. These compounds are anthopogenic and do not exist in the receiving waters naturally nor is there information provided on their potential impacts on

beneficial uses. The permit application states that no organic compounds will be discharged from the treatment system as activated carbon will be included in the treatment process. However since the treatment system has not yet been constructed, technology based effluent limits are appropriate until it can be demonstrated these compounds are removed.

Technology based limitations are utilized to assure the treatment systems are properly designed and operated.

Table F-3. Summary of Technology-based Effluent Limitations

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Total Suspended Solids	mg/L	20	30	--	--
pH	standard units	--	--	6.0	9.0
Cadmium, Total Recoverable	µg/L	50	100	--	--
Copper, Total Recoverable	µg/L	150	300	--	--
Lead, Total Recoverable	µg/L	300	600	--	--
Mercury, Total Recoverable	µg/L	1	2	--	--
Zinc, Total Recoverable	µg/L	750	1,500	--	--
Total Petroleum Hydrocarbons (Diesel)	µg/L		50		
Methyl Isobutyl Carbinol[1]	µg/L				<5
Potassium Amyl Xanthate[1]	µg/L				ND

[1]There are no standard method for analyzing these compounds, therefore the Discharger is required to submit documentation from a appropriately certified laboratory describing their analytical procedures and detection limits.

Flow. The Washington Mine water treatment facility is designed to provide treatment to meet effluent limits for up to a design flow of 300 gpm (0.432 mgd). Therefore, this Order contains an Average Daily Discharge Flow effluent limit of 0.432 mgd.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

As specified in section 122.44(d)(1)(i), permits are required to include WQBELs for pollutants (including toxicity) that are or may be discharged at levels that cause, have reasonable potential to cause, or contribute to an in-stream excursion above any state water quality standard. The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

The proposed water treatment plant and the O'Neal, Government, and Robillard mine portals discharge to Scorpion Gulch, approximately 1 mile west of the confluence with French Gulch. The I-level portal discharges to French Gulch Creek. Clear Creek, 2.5 miles east of the confluence of Scorpion Gulch and French Gulch, is tributary to Whiskeytown Lake. Scorpion Gulch and French Gulch are minor perennial drainages. The Basin Plan does not specifically identify beneficial uses for Scorpion Gulch or French Gulch, but does identify present and potential uses for Whiskeytown Reservoir, to which Scorpion Gulch and French Gulch, via Upper Clear Creek, are tributary. The Basin Plan on page ii-2.00 states "The beneficial uses of any specifically identified water body generally apply to its tributary streams". It is reasonable to apply the beneficial uses of the Whiskeytown Lake to the receiving waters. Therefore the beneficial uses of Scorpion Gulch and French Gulch are as follows:

Discharge Point	Location	Receiving Water Name	Beneficial Use(s)
001 002 003 004 005 006 007	Treatment Plant O'Neil Adit Government Adit New Adit Robillard I Level Adit Land Disposal Area	Scorpion Gulch Scorpion Gulch Scorpion Gulch Scorpion Gulch Scorpion Gulch French Gulch -	Existing: Municipal and domestic supply (MUN); Agricultural supply (AGR), including irrigation and stock watering; hydropower generation (POW); water contact recreation (REC-1); other non-contact water recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); warm spawning (SPWN); wildlife habitat (WILD).

Hardness. While no effluent limitation for hardness is necessary in this Order, hardness is critical to the assessment of the need for, and the development of, water quality objectives for certain metals. The CTR and the NTR contain water quality criteria for seven metals that vary as a function of hardness, the lower the hardness the lower the water quality criteria. The metals having hardness-dependent criteria

include cadmium, copper, chromium III, lead, nickel, silver, and zinc. The equation describing the regulatory criterion, as established in the CTR, is as follows:

CTR Criterion = $e^{m[\ln(H)]+b}$ (Equation 1)

Where:

H = Hardness
m = metal- and criterion-specific constant
b = metal- and criterion-specific constant

The constants "m" and "b" are specific to both the metal under consideration, and the type of CTR criterion (i.e., acute or chronic). The metal-specific values for these constants are provided in the CTR at paragraph (b)(2), Table 1.

The relationship between hardness and the resulting criterion in Equation 1 can exhibit either a downward-facing (i.e., concave downward) or an upward-facing (i.e., concave upward) curve depending on the values of the criterion-specific constants. The curve shapes for acute and chronic criteria for the metals are as follows:

Concave Downward: cadmium (chronic), chromium (III), copper, nickel, and zinc
Concave Upward: cadmium (acute), lead, and silver (acute)

Effluent limitations for the discharge must be set to protect the beneficial uses of the receiving water for all discharge conditions. In the absence of the option of including condition-dependent, "floating" effluent limitations that are reflective of actual hardness conditions at the time of discharge, effluent limitations must be set using a reasonable worst-case condition in order to protect beneficial uses for all discharge conditions. Recent studies indicate that using the lowest recorded receiving water hardness for establishing water quality criteria is not protective of the receiving water under various mixing conditions and could be overly protective for some mixing conditions. The Regional Water Board has evaluated these studies and concurs that for some parameters the beneficial uses of the receiving water are fully protected using the lowest hardness value of the effluent. For some parameters, the use of the lowest hardness value of the effluent and either lowest or highest hardness value of the receiving water is protective. However, to use this approach the effluent hardness dataset must be sufficient to ensure adequate protection of the beneficial uses.

For those contaminants where the regulatory criteria exhibit a concave downward relationship as a function of hardness, use of the lowest recorded effluent hardness for establishment of water quality objectives is fully protective of all beneficial uses regardless of whether the effluent or receiving water hardness is higher. Use of the lowest recorded effluent hardness is also protective under all possible mixing conditions between the effluent and the receiving water (i.e., from high dilution to no dilution). The Report of Waste Discharge did not contain information on receiving water hardness, and since the treatment system is not in operation, no information

on the effluent hardness exists. However, limited sampling of the effluent from the Main Adit indicates the influent to the treatment plant will have a hardness higher than the receiving waters. Receiving water hardness data collected over the past year consists of four samples as follows:

Date	Scorpion Gulch (mg/l)	French Gulch Below Confluence with Scorpion Gulch (mg/l)
30 October 2008	96	74
26 February 2009	95	
27 February 2009	72	
15 April 2009	75	

Therefore, for cadmium (chronic), chromium (III), copper, nickel, and zinc water quality criteria for discharges into Scorpion Gulch were calculated using Equation 1 and a minimum effluent hardness of 72 mg/L as $CaCO_3$, based on four samples collected by Regional Water Board staff and BRGC.

For those metals where the regulatory criteria exhibit a concave upward relationship as a function of hardness, a water quality objective based on either the effluent hardness or the receiving water hardness would not be protective under all mixing scenarios. Instead, a water quality objective that accounts for both the hardness of the receiving water and the effluent is required. The following equations provide fully protective water quality criteria for those metals that exhibit a concave upward relationship.

$$\text{CTR Criterion} = \left[\frac{m}{H_{rw}} \cdot \left(H_{eff} - H_{rw}\right) + 1\right] \cdot e^{m \cdot \ln(H_{rw}) + b} \qquad \text{(Equation 2)}$$

Where:

H_{eff} = lowest recorded effluent hardness
Hr_w = lowest recorded receiving water hardness
m = metal- and criterion-specific constant
b = metal- and criterion-specific constant

If upon completion of the required monitoring of hardness in the receiving water and effluent, it is determined the current calculated metals are not protective of beneficial uses, this permit will be reopened and more restrictive water quality criteria for cadmium (acute), lead, and silver (acute) calculated using Equation 2 with the lowest reported effluent hardness and receiving water hardness.

a. **Assimilative Capacity/Mixing Zone.**
The Discharger has not submitted any information regarding the assimilative

capacity of the receiving waters nor have they applied for a mixing zone, therefore neither is applicable to the discharge.

3. Determining the Need for WQBELs

a. CWA section 301 (b)(1) requires NPDES permits to include effluent limitations that achieve technology-based standards and any more stringent limitations necessary to meet water quality standards. Water quality standards include Regional Water Board Basin Plan beneficial uses and narrative and numeric water quality objectives, State Water Board-adopted standards, and federal standards, including the CTR and NTR. The Basin Plan includes numeric site-specific water quality objectives and narrative objectives for toxicity, chemical constituents, and tastes and odors. The narrative toxicity objective states: "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at III-8.00.) With regards to the narrative chemical constituents objective, the Basin Plan states that waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At minimum, "…*water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs)*" in Title 22 of CCR. The narrative tastes and odors objective states: "*Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.*"

b. Federal regulations require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause, or contribute to an in-stream excursion above a narrative or numerical water quality standard. Based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs, the Regional Water Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for ammonia, antimony, arsenic, beryllium, cadmium, chlorine, chromium, cobalt, copper, electrical conductivity, lead, mercury, molybdenum, nickel, nitrate, silver, TDS, vanadium, and zinc. Water quality-based effluent limitations (WQBELs) for these constituents are included in this Order**.** A summary of the reasonable potential analysis (RPA) is provided in Attachment G, and a detailed discussion of the RPA for each constituent is provided below.

c. The Regional Water Board conducted the RPA in accordance with Section 1.3 of the SIP. Although the SIP applies directly to the control of CTR priority pollutants, the State Water Board has held that the Regional Water Board may

use the SIP as guidance for water quality-based toxics control.[1] The SIP states in the introduction "*The goal of this Policy is to establish a standardized approach for permitting discharges of toxic pollutants to non-ocean surface waters in a manner that promotes statewide consistency."* Therefore, in this Order the RPA procedures from the SIP were used to evaluate reasonable potential for both CTR and non-CTR constituents.

d. WQBELs were calculated in accordance with section 1.4 of the SIP, as described in Attachment F, Section IV.C.4.

   Based on the sample results in the effluent, the limitations appear to put the Discharger in immediate non-compliance for discharges from the Robillard, Government, O'Neil, and I-level adits. New or modified control measures for these adits may be necessary in order to comply with the effluent limitations, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. Therefore, a Cease and Desist Order will be inssued concurrently wth this Order containing a time schedule to bring the adit discharges into compliance in accordance with CWC section 13301, that requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3. Discharges from the New Adit must meet effluent standards upon adoption of this permit.

e. **Ammonia.** Explosives comprised of ammonium nitrate are used at the mine to shatter the bedrock to allow for the removal of the waste rock and ore. Residual ammonium nitrate may enter the mine drainage water and from there discharge to the receiving waters. Ammonia is known to cause toxicity to aquatic organisms in surface waters. Discharges of ammonia would violate the Basin Plan narrative toxicity objective. Applying 40 CFR section122.44(d)(1)(vi)(B), it is appropriate to use USEPA's Ambient National Water Quality Criteria for the Protection of Freshwater Aquatic Life for ammonia, which was developed to be protective of aquatic organisms.

   USEPA's *Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life*, for total ammonia, recommends acute (1-hour average; criteria maximum concentration) standards based on pH and chronic (30-day average, criteria continuous concentration) standards based on pH and temperature. It also recommends a maximum four-day average concentration of 2.5 times the criteria continuous concentration. USEPA found that as pH increased, both the acute and chronic toxicity of ammonia increased. Salmonids were more sensitive to acute toxicity effects than other species. However, while the acute toxicity of ammonia was not influenced by temperature, it was found that invertebrates and young fish experienced increasing chronic toxicity effects with increasing temperature. Because Scorpion Gulch has a beneficial use of cold freshwater habitat and the presence of salmonids and early fish life stages in Scorpion Gulch and French Gulch are well-documented, the recommended criteria for

[1] See, Order WQO 2001-16 (Napa) and Order WQO 2004-0013 (Yuba City)

waters where salmonids and early life stages are present were used. USEPA's recommended criteria are show below:

$$CCC_{30-day} = \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}} \right) \times MIN\left(2.85, 1.45 \cdot 10^{0.028(25-T)}\right), \text{ and}$$

$$CMC = \left(\frac{0.275}{1+10^{7.204-pH}} + \frac{39.0}{1+10^{pH-7.204}} \right),$$

where *T* is in degrees Celsius

The maximum permitted effluent pH is 8.5. The Basin Plan objective for pH in the receiving stream is the range of 6.5 to 8.5. There is no temperature data on either the receiving waters or the proposed effluent. Therefore a maximum stream temperature must be estimated until such data can be collected. Temperature data was collected by the University of Montana in cooperation with the Whiskeytown National Recreation Area in French Gulch Creek in 2006 and 2007 as part of their assessment of the impacts of the French Fire on vegetation and aquatic life. The data includes temperatures recorded in the months of October and December 2006, and March and June 2007. The maximum water temperature recorded in June 2007 was 14.9 C (58.8 F). The maximum temperature would be much higher in the summer months with higher air temperatures and lower stream flows. It is reasonable to assume the temperature could exceed 21ºC (70ºF). Using a pH value of 8.5 and the estimated worst-case temperature value of 70ºF (21ºC), the resulting effluent limitations are 2.1 mg/L (as N) for the average one-hour effluent limitation and 0.717 mg/L for the average monthly effluent limitation. There is no data on the potential ammonia concentrations that may be present in the effluent. However, there is data submitted with the permit application that nitrate, one of the components of the ammonium nitrate explosives, may be present in the effluent. It is therefore reasonable to assume that residual ammonia may also be present in the effluent. Effluent Limitations for ammonia are included in this Order to assure the treatment process adequately removes ammonia from the waste stream to protect the aquatic habitat beneficial uses.

f. **Antimony.** The California Department of Health Services (DHS) Primary Maximum Contaminate Level (MCL) is 6 µg/L for antimony. Applying the Basin Plan's "Policy for Application of Water Quality Objectives", to protect future municipal and domestic water use, it is reasonable to apply the DHS MCL for antimony to the receiving stream.

The Maximum Effluent Concentration (MEC) for antimony is 47 µg/L from the New Adit, based on 1 sample collected on 3 August 2007, while the maximum observed upstream receiving water antimony concentration is below the detection limit of 4 µg/L, based on 6 samples collected between 8 January 2006 and 5 January 2007. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the DHS Primary MCL. An

Average Monthly Effluent Limitation (AMEL) equal to the Primary MCL of 6 µg/L for antimony is included in this Order based on protection of the Basin Plan's narrative chemical constituents objective.

Based on the sample results in bench scale tests on the effluent, it appears the Discharger can meet this limitation for discharges from the mill and new adit.

The Discharger may be unable to comply with these limitations for the O'Neil, Government, Robillard, and I-Level. Therefore, a time schedule has been established in a Cease and Desist Order to be adopted concurrently.

As required by the SIP, interim performance-based maximum daily effluent limitations were developed for the respective adits using the statistical methods described in Attachment F, Section IV.D.1. and are included in the Cease and Desist Order.

g. **Arsenic.** The USEPA Primary MCL is 10 µg/L for arsenic. Pursuant to the Safe Drinking Water Act, DHS must revise the arsenic MCL in Title 22 CCR to be as low or lower than the USEPA MCL. Applying the Basin Plan's "Policy for Application of Water Quality Objectives", to protect future municipal and domestic water use, it is reasonable to apply the USEPA MCL for arsenic to the receiving stream.

   The MEC for arsenic was 1,590 µg/L from the New Adit, based on 5 samples collected between 16 February 2007 and 19 August 2008, while the maximum observed upstream receiving water arsenic concentration was 66 µg/L, based on 6 samples collected between 8 January 2006 and 5 January 2007. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the USEPA Primary MCL. An AMEL equal to the Primary MCL of 10 µg/L for arsenic is included in this Order based on protection of the Basin Plan's narrative chemical constituents objective.

   Based on the sample results in bench scale tests on the effluent, the Discharger can meet this limitation for discharges from the mill and New adit.

   The Discharger is unable to comply with these limitations for the O'Neil, Government, Robillard, and I-level Adits and interim limits have been developed as described for antimony under Section IV.C.3.f. above.

h. **Cadmium**. The Basin Plan contains chemical constituent criteria for cadmium in the Sacramento River and its tributaries above State Highway 32 bridge at Hamilton City (Basin Plan, Table III-1, Trace Element Water Quality Objectives, page III-3.00). This criteria is for the protection of freshwater aquatic life. The lowest receiving water hardness measured is 72 mg/l based on four samples collected between 30 October 2008 and 15 April 2009. Based on these data, the calculated, acute water quality criterion for dissolved cadmium is 0.442 µg/L.

The U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. The acute water quality criterion (maximum one-hour average concentration) for total recoverable cadmium is 0.46 µg/L

The CTR includes acute and chronic criteria for cadmium for the protection of aquatic life. The Basin Plan acute criterion calculated above is lower than the CTR acute criteria, therefore the Basin Plan objective is appropriate for the acute water quality criterion.

The CTR chronic criterion (maximum four-day average concentration) for the protection of aquatic life is 1.902. This is higher than the Basin Plan acute criterion and it is therefore not appropriate to use the CTR criterion.

The MEC for cadmium is 21.4 µg/L from the New Adit, based on 5 samples collected between 16 February 2007 and 19 August 2008. The maximum observed upstream receiving water showed cadmium below the detection limit of 1 µg/L, based on 6 samples collected between 8 January 2006 and 5 January 2007. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the acute water quality criterion for protection of freshwater aquatic life.

The SIP requires converting chronic and acute aquatic life criteria to average monthly effluent limitation (AMEL) and maximum daily effluent limitations (MDEL) based on the variability of the existing data and the expected frequency of monitoring. Equations summerizing the conversion are shown in Section IV.C.4. below:

An AMEL of 0.23 µg/L and a MDEL of 0.5 for cadmium is included in this Order based on protection of the Basin Plan's narrative chemical constituents objective. It is expected the Discharger will be able to meet this limitation for discharges from the mill and New adit.

The Discharger is unable to comply with these limitations for the O'Neil, Government, Robillard, and I-level Adits and interim limits have been developed as described for antimony under Section IV.C.3.f. above.

i. **Chlorine Residual.** The Report of Waste Discharge identified residual chlorine as a waste constituent that may be discharged from the proposed treatment system at concentrations between 2 and 0.6 mg/L. Therefore chlorine has a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective.

The USEPA Technical Support Document for Water Quality-Based Toxics Control [EPA/505/2-90-001] contains statistical methods for converting chronic (four-day) and acute (one-hour) aquatic life criteria to average monthly and

maximum daily effluent limitations based on the variability of the existing data and the expected frequency of monitoring. However, because chlorine is an acutely toxic constituent that can and will be monitored continuously, an average one-hour limitation is considered more appropriate than an average daily limitation. Average one-hour and four-day limitations for chlorine at 0.02 mg/L and 0.01 mg/L, respectively, based on these criteria, are included in this Order. The Discharger can immediately comply with these new effluent limitations for chlorine residual.

The only source of chlorine is the mill mineral recovery circuit as a residual breakdown product of the flotation reagents. Chlorine does not typically occur I mine drainage. Therefore chlorine is not expected in any of the adit discharges.

The chlorine residual limitations required in this Order are protective of aquatic organisms in the undiluted discharge. If compliance is maintained, the Regional Water Board does not anticipate residual chlorine impacts to benthic organisms.

j. **Chromium.** The DHS Primary MCL is 50 µg/L for total Chromium. Applying the Basin Plan's "Policy for Application of Water Quality Objectives", to protect future municipal and domestic water use, it is reasonable to apply the DHS MCL for chromium to the receiving stream.

The MEC for chromium was 277 µg/L from the New Adit, based on 5 samples collected between 16 February 2007 and 19 August 2008, while the maximum observed upstream receiving water chromium concentration was <1 µg/L, based on 6 samples collected between 12 September 2006 and 5 January 2007. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the DHS Primary MCL. A AMEL equal to the Primary MCL of 50 µg/L for chromium is included in this Order based on protection of the Basin Plan's narrative chemical constituents objective. It is expected the Discharger will be able to meet this limitation for discharges from the mill and New adit.

The Discharger is unable to comply with these limitations for the O'Neil, Government, Robillard, and I-level Adits and interim limits have been developed as described for antimony under Section IV.C.3.f. above.

k. **Cobalt.** *Water Quality for Agriculture,* Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985), recommends that the cobalt concentration in waters used for agricultural irrigation not exceed 50 µg/L. Applying the Basin Plan "Policy for Application of Water Quality Objectives", the numeric standard that implements the narrative objective is the Agricultural Water Quality Goal of 50 µg/L.

The MEC for cobalt was 54 µg/L from the New Adit, based on 1 sample collected

on 3 August 2007, while the maximum observed upstream receiving water cobalt concentration was <1 µg/L, based on 6 samples collected between 1 August 2006 and 5 January 2007. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Water Quality Goal for Agriculture. A AMEL of 50 µg/L for cobalt is included in this Order based on protection of the Basin Plan's narrative chemical constituents objective.

It is expected the Discharger will be able to meet this limitation for discharges from the mill and new adit.

The Discharger is unable to comply with these limitations for the O'Neil, Government, Robillard, and I-level Adits and interim limits have been developed as described for antimony under Section IV.C.3.f. above.

l. **Copper.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for copper. The criteria for copper are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. The USEPA default conversion factors for copper in freshwater are 0.96 for both the acute and the chronic criteria. Using a hardness value of 72 mg/L as $CaCO_3$ based on four samples of the receiving water and the USEPA recommended dissolved-to-total translator, the applicable chronic criterion (maximum four-day average concentration) is 7.0 µg/L and the applicable acute criterion (maximum one-hour average concentration) based on the criteria in the Basin Plan is 10 µg/L, as total recoverable.

The MEC for total copper was 221 µg/L from the New Adit, based on 5 samples collected between 16 February 2007 and 19 August 2008, while the maximum observed upstream receiving water total copper concentration was 2 µg/L, based on 6 samples collected between 1 August 2006 and January 2007. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for copper.

An AMEL and MDEL for total copper of 5.0 µg/L and 10.0 µg/L, respectively, are included in this Order based on criteria for the protection of freshwater aquatic life (See Attachment F, Table F-8 for WQBEL calculations).

Based on the sample results in bench scale tests, it appears the Discharger can meet these new limitations for discharges from the mill and New adit.

The Discharger is unable to comply with these limitations for the O'Neil, Government, Robillard, and I-level Adits and interim limits have been developed as described for antimony under Section IV.C.3.f. above.

m. **Electrical Conductivity. (see Subsection v. Salinity)**

n. **Lead**. The CTR includes hardness-dependent standards for the protection of freshwater aquatic life for lead. The standards for metals are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. The conversion factors for lead in freshwater are 1.46203-[0.145712 X ln(hardness)] for both the acute and the chronic criteria. Using the lowest measured hardness from four samples of the receiving water of 72 mg/L and the USEPA recommended dissolved-to-total translator, the applicable chronic criterion (maximum four-day average concentration) is 2.1 µg/L and the applicable acute criterion (maximum one-hour average concentration) is 53.7 µg/L, as total recoverable. The DHS primary MCL is 15 µg/L.

The MEC for total lead was 1,740 µg/L from the New Adit, based on 5 samples collected between 16 February 2007 and 19 August 2008, while the maximum observed upstream receiving water total lead concentration was 4 µg/L, based on 6 samples collected between 1 August 2006 and 5 January 2007. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for lead.

An AMEL and MDEL for total lead of 1.72 µg/L and 3.45 µg/L, respectively, are included in this Order based on CTR criteria for the protection of freshwater aquatic life (See Attachment F, Table F-8 for WQBEL calculations).

Based on the sample results in bench scale tests, it appears the Discharger can meet these new limitations for discharges from the mill and new adit.

The Discharger is unable to comply with these limitations for the O'Neil, Government, Robillard, and I-level Adits and interim limits have been developed as described for antimony under Section IV.C.3.f. above

o. **Mercury.** The current USEPA Ambient Water Quality Criteria for Protection of Freshwater Aquatic Life, continuous concentration, for mercury is 0.77 µg/L (30-day average, chronic criteria). The CTR contains a human health criterion (based on a one-in-a-million cancer risk) of 0.050 µg/L for waters from which both water and aquatic organisms are consumed. Both values are controversial and subject to change. In 40 CFR Part 131, USEPA acknowledges that the human health criteria may not be protective of some aquatic or endangered species and that "…*more stringent mercury limits may be determined and implemented through use of the State's narrative criterion.*" In the CTR, USEPA reserved the mercury criteria for freshwater and aquatic life and may adopt new criteria at a later date.

The MEC for total mercury was 0.21 µg/L, based on 4 samples collected between 16 February 2007 and 19 August 2008, while the maximum observed upstream receiving water total lead concentration was below the detection limit of <0.07 µg/L, based on 6 samples collected between 1 August 2006 and 5 January

2007. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for mercury.

An AMEL and MDEL for total mercury of 0.05 µg/L and 0.10 µg/L, respectively, are included in this Order based on CTR criteria for the protection of human health (See Attachment F, Table F-8 for WQBEL calculations). If USEPA develops new water quality standards for mercury, this permit may be reopened and the Effluent Limitations adjusted. It is unknown if the Discharger can meet these new limitations for discharges from the mill and New adit.

The Discharger is unable to comply with these limitations for the O'Neil, Government, Robillard, and I-level Adits and interim limits have been developed as described for antimony under Section IV.C.3.f. above.

p. **Molybdenum.** *Water Quality for Agriculture,* Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985), recommends that the molybdenum concentration in waters used for agricultural irrigation not exceed 10 µg/L. Applying the Basin Plan "Policy for Application of Water Quality Objectives", the numeric standard that implements the narrative objective is the Agricultural Water Quality Goal of 10 µg/L.

The MEC for molybdenum was 38 µg/L from the New Adit, based on 1 sample collected on 3 August 2007, while the maximum observed upstream receiving water molybdenum concentration was 1 µg/L, based on 1 sample collected on 12 September 2006. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's chemical constituents objective. An AMEL equal to the Agricultural Water Quality Goal of 10 µg/L for molybdenum is included in this Order based on protection of the Basin Plan's narrative chemical constituents objective. It is unknown if the Discharger can meet this new limitations for discharges from the mill and New adit.

The Discharger is unable to comply with these limitations for the O'Neil, Government, Robillard, and I-level Adits and interim limits have been developed as described for antimony under Section IV.C.3.f. above.

q. **Nickel.** The CTR includes hardness-dependent water quality criteria for the protection of both freshwater and saltwater aquatic life for nickel. The criteria for metals are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. The conversion factors for nickel in freshwater are 0.998 for the acute criteria and 0.997 for the chronic criteria. Using the lowest measured hardness from four samples of the receiving water of 72 mg/L and the USEPA recommended dissolved-to-total translator, the applicable continuous concentration (maximum four-day average concentration) is 39.5 µg/L and the applicable maximum

concentration (maximum one-hour average concentration) is 355 µg/L, as total recoverable.

The MEC for total nickel was 265 µg/L, based on 1 sample collected from the New Adit on 3 August 2007, while the maximum observed upstream receiving water total nickel concentration was 3 µg/L, based on 6 samples collected between 12 September 2006 and 10 January 2007. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for nickel. An AMEL and MDEL for total nickel of 19.7 µg/L and 39.5 µg/L, respectively, are included in this Order based on CTR criteria for the protection of freshwater aquatic life (See Attachment F, Table F-8 for WQBEL calculations).

Based on the sample results in bench scale tests, it appears the Discharger can meet these new limitations for discharges from the mill and new adit.

The Discharger is unable to comply with these limitations for the O'Neil, Government, Robillard, and I-level Adits and interim limits have been developed as described for antimony under Section IV.C.3.f. above.

r. **Nitrite and Nitrate.** Mine drainage can contain nitrate from the ammonium nitrate explosives used in the mining process. The Report of Waste Discharge indicates nitrate may be present up to 4 mg/l in the effluent. Further, nitrification is a biological process that converts ammonia to nitrite and nitrite to nitrate. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. Nitrate and nitrite are known to cause adverse health effects in humans. The California DHS has adopted Primary MCLs at Title 22 of the California Code of Regulations (CCR), Table 64431-A, for the protection of human health for nitrite and nitrate that are equal to 1 mg/L and 10 mg/L (measured as nitrogen), respectively. Title 22 CCR, Table 64431-A, also includes a primary MCL of 10,000 µg/L (10 mg/L) for the sum of nitrate and nitrite, measured as nitrogen.

USEPA has developed a primary MCL and an MCL goal of 1,000 µg/L for nitrite (as nitrogen). For nitrate, USEPA has developed Drinking Water Standards (10,000 µg/L as Primary Maximum Contaminant Level) and Ambient Water Quality Criteria for protection of human health (10,000 µg/L for non-cancer health effects). Recent toxicity studies have indicated a possibility that nitrate is toxic to aquatic organisms.

Inadequate or incomplete denitrification may result in the discharge of nitrate and/or nitrite to the receiving stream. The conversion of ammonia to nitrites and the conversion of nitrites to nitrates present a reasonable potential for the discharge to cause or contribute to an in-stream excursion above the Primary MCLs for nitrite and nitrate. An AMEL for nitrite and nitrate of 1 mg/L and 10 mg/L, respectively, are included in this Order based on the MCLs. These effluent

limitations are included in this Order to assure that any residual from the explosives are at concentrations protective of the beneficial use of municipal and domestic supply.

Based on the information in the Report of Waste Discharge, it appears the Discharger can meet these new limitations for discharges from the mill and New adit.

The Discharger is unable to comply with these limitations for the O'Neil, Government, Robillard, and I-level Adits and interim limits have been developed as described for antimony under Section IV.C.3.f. above.

s. **Oil and Grease.** The mining process has many sources of oil and grease that may enter the waste stream. Mining equipment used underground is diesel powered and contains lubricants, including motor oil and grease. Some of the products used in the mill include a "water-in-oil emulsion". The Basin Plan includes a water quality objective for oil and grease in surface waters, which states: "*Waters shall not contain oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses*". This Order includes numeric monthly average and daily maximum Effluent Limitations of 10 mg/l and 15 mg/l, respectively, to implement the Basin Plan's narrative objective for oil and grease. These effluent limitations are based on best professional judgment (BPJ) and Regional Water Board staff's experience with wastewater treatment plant capabilities and levels necessary to meet the Basin Plan objective for oil and grease. Based on the information in the Report of Waste Discharge, it appears the Discharger can meet these new limitations for discharges from all discharge points.

t. **pH.** The Basin Plan includes a water quality objective for surface waters (except for Goose Lake) that the "…*pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses.*" Effluent Limitations for pH are included in this Order based on the Basin Plan objectives for pH.

Based on the information in the Report of Waste Discharge, it appears the Discharger can meet these new limitations for discharges from the mill and New adit.

The Discharger is unable to comply with these limitations for the O'Neil, Government, Robillard, and I-level Adits and interim limits have been developed as described for antimony under Section IV.C.3.f. above.

u. **Salinity.** The discharge contains total dissolved solids (TDS), chloride, sulfate, and electrical conductivity (EC). These are water quality parameters that are indicative of the salinity of the water. Their presence in water can be growth limiting to certain agricultural crops and can affect the taste of water for human consumption. There are no USEPA water quality criteria for the protection of aquatic organisms for these constituents. The Basin Plan contains a chemical constituent objective that incorporates State MCLs, contains a narrative objective, and contains numeric water quality objectives for EC, TDS, Sulfate, and Chloride.

Table F-4. Salinity Water Quality Criteria/Objectives

Parameter	Agricultural WQ Goal[1]	Secondary MCL[3]	Effluent	
			Avg	Max
EC (µmhos/cm)	Varies[2]	900, 1600, 2200	988[4]	1,239[4]
TDS (mg/L)	Varies	500, 1000, 1500	660[4]	796[4]
Sulfate (mg/L)	Varies	250, 500, 600	50[5]	90[5]

1 Agricultural water quality goals based on *Water Quality for Agriculture*, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985)

2 The EC level in irrigation water that harms crop production depends on the crop type, soil type, irrigation methods, rainfall, and other factors. An EC level of 700 µmhos/cm is generally considered to present no risk of salinity impacts to crops. However, many crops are grown successfully with higher salinities.

3 The secondary MCLs are stated as a recommended level, upper level, and a short-term maximum level.

4 Values from the I-Level Adit.

5 Values from the Report of Waste Discharge

i. **Electrical Conductivity (EC)**. The secondary MCL for EC is 900 µmhos/cm as a recommended level, 1600 µmhos/cm as an upper level, and 2200 µmhos/cm as a short-term maximum. The agricultural water quality goal, that would apply the narrative chemical constituents objective, is 700 µmhos/cm as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). The 700 µmhos/cm agricultural water quality goal is intended to prevent reduction in crop yield, i.e. a restriction on use of water, for salt-sensitive crops, such as beans, carrots, turnips, and strawberries. These crops are not grown in the area nor may be grown in the future. Waters immediately downstream of the discharge is not used for agriculture. Most other crops can tolerate higher EC concentrations without harm, however, as the salinity of the irrigation water increases, more crops are potentially harmed by the EC, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts.

There is no drinking water intake immediately downstream of the discharge, nor is there likely to be.

A review of the Discharger's monitoring reports from 3 August 2006 through 19 August 2008 shows the I-Level adit contained the highest EC readings with an average effluent EC of 988 µmhos/cm, ranging from 855 µmhos/cm to 1,239 µmhos/cm for 10 samples. These levels exceed the objectives sensitive agriculture use and the secondary MCL. The background receiving water EC averaged 242 µmhos/cm in 6 sampling events collected by the Discharger from 8 January 2006 through 10 January 2007, ranging from 72 µmhos/cm to 459 µmhos/cm. The electrical conductivity of French Gulch downstream of the discharge ranges between 115 and 206 µmhos/cm based on six samples taken in 2006 and 2007. The background and receiving waters have been receiving base ground water flow, which includes discharges from the I-Level and other adits for decades. It is therefore unlikely the discharge will result in any increase in electrical conductivity or salinity downstream. These data indicate the receiving water has assimilative capacity for TDS.

ii. **Sulfate**. The secondary MCL for sulfate is 250 mg/L as recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum. Sulfate concentrations in the treatment plant effluent are estimated to have a Maximum Daily Concentration of 90 mg/l an Average Daily Concentration of 50 mg/L. There is no data on the background concentrations in the receiving water nor is there any information on the discharge from the various adits. Therefore, monitoring of the adits for sulfate is a part of this Order.

iii. **Total Dissolved Solids (TDS)**. The secondary MCL for TDS is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum. There are no drinking water intakes immediately downstream of the discharge or in the French Gulch watershed. The recommended agricultural water quality goal for TDS, that would apply the narrative chemical constituent objective, is 450 mg/L as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). Water Quality for Agriculture evaluates the impacts of salinity levels on crop tolerance and yield reduction, and establishes water quality goals that are protective of the agricultural uses. The 450 mg/L water quality goal is intended to prevent reduction in crop yield, i.e. a restriction on use of water, for salt-sensitive crops. Only the most salt sensitive crops require irrigation water of 450 mg/L or less to prevent loss of yield. Most other crops can tolerate higher TDS concentrations without harm, however, as the salinity of the irrigation water increases, more crops are potentially harmed by the TDS, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts.

The average TDS effluent concentration from the I-Level adit (the adit with the highest TDS) was 660 mg/L and a ranged from 602 mg/L to 796 mg/L for 5 samples collected by the Discharger from 12 September 2006 through 10 January 2007. These concentrations do not exceed the upper limit for a

drinking water supply. The background receiving water TDS ranged from 103 mg/L to 166 mg/L, with an average of 148 mg/L in 5 sampling events performed by the Discharger from 12 Sept 2006 through 10 January 2007. The receiving water TDS downstream in French Gulch averaged 107 mg/L and ranged between 83 and 119 mg/L in 5 sampling events between August 2006 to January 2007. These data indicate the receiving water has assimilative capacity for TDS.

iv. **Salinity Effluent Limitations.** Effluent data for EC, TDS, and chloride is not available for the proposed treatment plant. EC and TDS data from the mine portals show that effluent concentrations from these sources to be at levels that will not affect beneficial uses of the receiving waters. Further, the receiving waters downstream of the mine show the lowest water quality criteria for EC and TDS applicable to sensitive agricultural crops and drinking water are met, even though there is no agriculture or drinkwater use in the area and the mine portal discharges and baseflow from the mineralized area impacted my mining activities have been occurring over several decades.

The EC and TDS data in the discharge from the mine adits do not have a reasonable potential to exceed water quality objectives, however the Discharger is required to develop a Salinity Evaluation And Minimization Plan to reduce overall salinity loading to the watershed.

v. **Settleable Solids.** For inland surface waters, the Basin Plan states that "[w]ater shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses." This Order does not contain average monthly and average daily effluent limitations for settleable solids. With total suspended solids limits in place, the settleable solids limits can be eliminated and still protect water quality objectives in the receiving water.

w. **Silver.** The CTR includes a hardness-dependent standard for the protection of freshwater aquatic life for silver. The CTR standards for metals are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. The conversion factor for silver in freshwater is 0.85 for the instantaneous maximum criterion. Using the lowest of four values obtained for hardness in from the receiving water, (72 mg/L) the lowest criterion is 2.3 µg/L total silver.

The MEC for silver was 8 µg/L, based on a single sample collected on 3 August 2007 from the New Adit, while the maximum observed upstream receiving water silver concentration was 1 µg/L, based on 6 samples collected between 1 August 2006 and 5 January 2007. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for silver.

Because the CTR criterion for silver is presented as an instantaneous maximum

with no associated averaging period, it is impracticable to convert the standard to an average monthly effluent limitation, an average weekly effluent limitation, or a maximum daily effluent limitation. Also because of the instantaneous nature of the standard, there is no associated period of flow with which to calculate mass loading limitations, making it impracticable to include mass limitations in this Order.

An instantaneous effluent limitation for silver (in total concentration) is included in this Order, based on the CTR standards for the protection of freshwater aquatic life.

Based on the information in the Report of Waste Discharge, it appears the Discharger can meet these new limitations for discharges from the mill and New adit.

The Discharger is unable to comply with these limitations for the O'Neil, Government, Robillard, and I-level Adits and interim limits have been developed as described for antimony under Section IV.C.3.f. above.

x. **Toxicity.** See Section IV.C.5. of the Fact Sheet regarding whole effluent toxicity.

y. **Vanadium**. *Water Quality for Agriculture,* Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985), recommends that the vanadium concentration in waters used for agricultural irrigation not exceed 100 µg/L. Applying the Basin Plan "Policy for Application of Water Quality Objectives", the numeric standard that implements the narrative objective is the Agricultural Water Quality Goal of 100 µg/L.

The MEC for vanadium was 280 µg/L, based on 1 sample collected from the New Adit on 3 August 2007, while the maximum observed upstream receiving water vanadium concentration was 3 µg/L, based on 3 samples collected between 1 August 2006 and 6 December 2006. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's chemical constituents objective. An AMEL of 100 µg/L for vanadium is included in this Order based on protection of the Basin Plan's narrative chemical constituents objective. It is unknown if the Discharger can meet this new limitation.

The Discharger is unable to comply with these limitations for the O'Neil, Government, Robillard, and I-level Adits and interim limits have been developed as described for antimony under Section IV.C.3.f. above.

The Discharger is unable to comply with these limitations for the O'Neil, Government, Robillard, and I-level Adits and interim limits have been developed

as described for antimony under Section IV.C.3.f. above.

z. **Zinc.** The Basin Plan contains chemical constituent criteria for zinc in the Sacramento River and its tributaries above State Highway 32 bridge at Hamilton City (Basin Plan, Table III-1, Trace Element Water Quality Objectives, page III-3.00). This criteria is for the protection of freshwater aquatic life. The criteria is presented in dissolved concentrations and is dependent on hardness.
The acute water quality criterion (maximum one-hour average concentration) for total recoverable zinc is 26.7 µg/L

The CTR includes acute and chronic criteria for zinc for the protection of aquatic life. The Basin Plan acute criterion calculated above is lower than the CTR acute criteria of 90.7 µg/L, therefore the Basin Plan objective is appropriate for the acute water quality criterion.

The MEC for zinc is 1,380 µg/L from the New Adit, based on 5 samples collected between 16 February 2007 and 19 August 2008. The maximum observed upstream receiving water showed zinc is 15 µg/L, based on 6 samples collected between 8 January 2006 and 5 January 2007. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the acute water quality criterion for protection of freshwater aquatic life.

The SIP requires converting chronic and acute aquatic life criteria to AMELs and MDELs based on the variability of the existing data and the expected frequency of monitoring. This Order includes a AMEL and MDEL for zinc of 13.3 and 26.7, respectively, based on CTR criteria for the protection of freshwater aquatic life (See Attachment F, Table F-8 for WQBEL calculations).

4. WQBEL Calculations

a. Effluent limitations for antimony, arsenic, cadmium, copper, lead, mercury, nickel, and zinc were calculated in accordance with section 1.4 of the SIP. The following paragraphs describe the methodology used for calculating effluent limitations.

b. **Effluent Limitation Calculations.** In calculating maximum effluent limitations, the effluent concentration allowances were set equal to the criteria/standards/objectives.

$$ECA_{acute} = CMC \qquad ECA_{chronic} = CCC$$

For the human health, agriculture, or other long-term criterion/objective, a dilution credit can be applied. The ECA is calculated as follows:

$ECA_{HH} = HH + D(HH - B)$

where:

ECA_{acute} = effluent concentration allowance for acute (one-hour average) toxicity criterion

$ECA_{chronic}$ = effluent concentration allowance for chronic (four-day average) toxicity criterion

ECA_{HH} = effluent concentration allowance for human health, agriculture, or other long-term criterion/objective

CMC = criteria maximum concentration (one-hour average)

CCC = criteria continuous concentration (four-day average, unless otherwise noted)

HH = human health, agriculture, or other long-term criterion/objective

D = dilution credit

B = maximum receiving water concentration

Acute and chronic toxicity ECAs were then converted to equivalent long-term averages (LTA) using statistical multipliers and the lowest is used. Additional statistical multipliers were then used to calculate the maximum daily effluent limitation (MDEL) and the average monthly effluent limitation (AMEL).

Human health ECAs are set equal to the AMEL and a statistical multiplier is used to calculate the MDEL.

$$AMEL = mult_{AMEL}\left[\min\left(\overbrace{M_A ECA_{acute}}^{LTA_{acute}}, M_C ECA_{chronic}\right)\right]$$

$$MDEL = mult_{MDEL}\left[\min\left(M_A ECA_{acute}, \underbrace{M_C ECA_{chronic}}_{LTA_{chronic}}\right)\right]$$

$$MDEL_{HH} = \left(\frac{mult_{MDEL}}{mult_{AMEL}}\right) AMEL_{HH}$$

where: $mult_{AMEL}$ = statistical multiplier converting minimum LTA to AMEL
$mult_{MDEL}$ = statistical multiplier converting minimum LTA to MDEL
M_A = statistical multiplier converting CMC to LTA
M_C = statistical multiplier converting CCC to LTA

Water quality-based effluent limitations were calculated for cadmium, copper lead, nickel, and zinc as described below. The receiving waters are low volume streams and dilution credits are not appropriate.

Table F-5 WQBEL Calculations for Cadmium

	Acute	Chronic
Criteria, dissolved (µg/L)	0.46(1)	1.7(2)

Dilution Credit	No Dilution	No Dilution
Translator [3]	0.923	0.923
ECA, total recoverable [4]	0.49	1.9
ECA Multiplier [5]	0.32	0.53
LTA	0.16	1.1
AMEL Multiplier (95th%) [6][7]	1.55	[9]
AMEL (µg/L)	0.24	[9]
MDEL Multiplier (99th%) [8]	3.11	[9]
MDEL (µg/L)	0.5	[9]

(1) Basin Plan aquatic life criteria above Highway 32 at Hamilton City, based on a hardness of 72 mg/L as $CaCO_3$.
(2) CTR aquatic life criteria, based on a hardness of 72 mg/L as $CaCO_3$.
(3) EPA Translator used as default.
(4) ECA calculated per section 1.4.B, Step 2 of SIP. This allows for the consideration of dilution.
(5) Acute and Chronic ECA Multiplier calculated at 99th percentile per section 1.4.B, Step 3 of SIP or per sections 5.4.1 and 5.5.4 of the TSD.
(6) Assumes sampling frequency n<4.
(7) The probability basis for AMEL is 95th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.
(8) The probability basis for MDEL is 99th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.
(9) Limitations based on acute LTA (acute LTA < chronic LTA)

Table F-6 WQBEL Calculations for Copper

	Acute	Chronic
Criteria, dissolved (µg/L)	9.8[1]	6.72[1]
Dilution Credit	No Dilution	No Dilution
Translator [2]	0.96	0.96
ECA, total recoverable [3]	10.3	7
ECA Multiplier [4]	0.32	0.53
LTA	3.21	3.69
AMEL Multiplier (95th%) [5][6]	1.55	[8]
AMEL (µg/L)	4.98	[8]
MDEL Multiplier (99th%) [7]	3.11	[8]
MDEL (µg/L)	10.0	[8]

(1) CTR aquatic life criteria, based on a hardness of 72 mg/L as $CaCO_3$.
(2) EPA Translator used as default.
(3) ECA calculated per section 1.4.B, Step 2 of SIP. This allows for the consideration of dilution.
(4) Acute and Chronic ECA Multiplier calculated at 99th percentile per section 1.4.B, Step 3 of SIP or per sections 5.4.1 and 5.5.4 of the TSD.
(5) Assumes sampling frequency n<4.
(5) The probability basis for AMEL is 95th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.
(7) The probability basis for MDEL is 99th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.
(8) Limitations based on acute LTA (acute LTA < chronic LTA)

Table F-7 WQBEL Calculations for Lead

	Acute	Chronic
Criteria, dissolved (µg/L)	15.0[1]	1.65[1]
Dilution Credit	No Dilution	No Dilution

Translator [2]	0.839	0.839
ECA, total recoverable [3]	53.7	2.1
ECA Multiplier [4]	0.32	0.53
LTA	17.02	1.11
AMEL Multiplier (95th%) [5][6]	[8]	1.55
AMEL (µg/L)	[8]	**1.72**
MDEL Multiplier (99th%) [7]	[8]	3.11
MDEL (µg/L)	[8]	**3.45**

(1) CTR aquatic life criteria, based on a hardness of 72 mg/L as $CaCO_3$.
(2) EPA Translator used as default.
(3) ECA calculated per section 1.4.B, Step 2 of SIP. This allows for the consideration of dilution.
(4) Acute and Chronic ECA Multiplier calculated at 99th percentile per section 1.4.B, Step 3 of SIP or per sections 5.4.1 and 5.5.4 of the TSD.
(5) Assumes sampling frequency n<4.
(6) The probability basis for AMEL is 95th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.
(7) The probability basis for MDEL is 99th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.
(8) Limitations based on chronic LTA (chronic LTA < acute LTA)

Table F-8 WQBEL Calculations for Nickel

	Acute	Chronic
Criteria, dissolved (µg/L)	354[1]	39.4[1]
Dilution Credit	No Dilution	No Dilution
Translator [2]	0.998	0.997
ECA, total recoverable [3]	355	39.5
ECA Multiplier [4]	0.32	0.53
LTA	114	20.8
AMEL Multiplier (95th%) [5][6]	[8]	1.55
AMEL (µg/L)	[8]	**32.3**
MDEL Multiplier (99th%) [7]	[8]	3.11
MDEL (µg/L)	[8]	**64.9**

(1) CTR aquatic life criteria, based on a hardness of 72 mg/L as $CaCO_3$.
(2) EPA Translator used as default.
(3) ECA calculated per section 1.4.B, Step 2 of SIP. This allows for the consideration of dilution.
(4) Acute and Chronic ECA Multiplier calculated at 99th percentile per section 1.4.B, Step 3 of SIP or per sections 5.4.1 and 5.5.4 of the TSD.
(5) Assumes sampling frequency n<4.
(6) The probability basis for AMEL is 95th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.
(7) The probability basis for MDEL is 99th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.
(8) Limitations based on chronic LTA (chronic LTA < acute LTA)

Table F-9 WQBEL Calculations for Zinc

	Acute	Chronic
Criteria, dissolved (µg/L)	26.7[1]	90.70[2]
Dilution Credit	No Dilution	No Dilution
Translator [3]	0.978	0.986
ECA, total recoverable [4]	27.2	92

ECA Multiplier [5]	0.32	0.53
LTA	8.73	48.52
AMEL Multiplier (95th%) [6][7]	1.55	[9]
AMEL (µg/L)	13.6	[9]
MDEL Multiplier (99th%) [8]	3.11	[9]
MDEL (µg/L)	27.2	[9]

Basin Plan aquatic life criteria above Highway 32 at Hamilton City, based on a hardness of 72 mg/L as $CaCO_3$.

CTR aquatic life criteria, based on a hardness of 72 mg/L as $CaCO_3$.
EPA Translator used as default.
ECA calculated per section 1.4.B, Step 2 of SIP. This allows for the consideration of dilution.
Acute and Chronic ECA Multiplier calculated at 99th percentile per section 1.4.B, Step 3 of SIP or per sections 5.4.1 and 5.5.4 of the TSD.
Assumes sampling frequency n<4.
The probability basis for AMEL is 95th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.
The probability basis for MDEL is 99th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.
Limitations based on acute LTA (acute LTA < chronic LTA)

Summary of Water Quality-based Effluent Limitations
Discharge Points 001 through 006

Table F-10. Summary of Water Quality-based Effluent Limitations

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Antimony, Total Recoverable	µg/L	6.0			
Arsenic, Total Recoverable	µg/L	10.0			
Beryllium	µg/L	4			
Cadmium, Total Recoverable	µg/L	0.24	0.5		
Chromium, Total Recoverable	µg/L	50			
Cobalt, Total Recoverable	µg/L	50			
Copper, Total Recoverable	µg/L	5	10		
Lead, Total Recoverable	µg/L	1.7	3.5		
Mercury, Total Recoverable	µg/L	0.05	0.10		
Molybdenum, Total Recoverable	µg/L	10			
Nickel, Total Recoverable	µg/L	32	64		
Silver, Total Recoverable	µg/L				2.3
Total Dissolved Solids	mg/l	450			
Vanadium, Total Recoverable	µg/L	100			
Zinc, Total Recoverable	µg/L	14	27		
Ammonia	mg/L	0.7	2		
BOD	mg/L	<5			
Electrical Conductivity	µmohs/cm	700			

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Nitrate (as N)	mg/L	10			
Nitrite (as N)	mg/L	1			
Oil and Grease	mg/L	10	15		
pH	standard units			6.5	8.5

5. Whole Effluent Toxicity (WET)

For compliance with the Basin Plan's narrative toxicity objective, this Order requires the Discharger to conduct whole effluent toxicity testing for acute and chronic toxicity, as specified in the Monitoring and Reporting Program (Attachment E, Section V.). This Order also contains effluent limitations for acute toxicity and requires the Discharger to implement best management practices to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity.

a. **Acute Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at III-8.00. The Basin Plan also states that, "…*effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate*…". USEPA Region 9 provided guidance for the development of acute toxicity effluent limitations in the absence of numeric water quality objectives for toxicity in its document titled "Guidance for NPDES Permit Issuance", dated February 1994. In section B.2. "Toxicity Requirements" (pgs. 14-15) it states that, "*In the absence of specific numeric water quality objectives for acute and chronic toxicity, the narrative criterion 'no toxics in toxic amounts' applies. Achievement of the narrative criterion, as applied herein, means that ambient waters shall not demonstrate for acute toxicity: 1) less than 90% survival, 50% of the time, based on the monthly median, or 2) less than 70% survival, 10% of the time, based on any monthly median. For chronic toxicity, ambient waters shall not demonstrate a test result of greater than 1 TUc."* Accordingly, effluent limitations for acute toxicity have been included in this Order as follows:

Acute Toxicity. Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

Minimum for any one bioassays ---------- 70%
Median for any three or more consecutive bioassays --------- 90%

b. **Chronic Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "All waters shall be maintained free of toxic substances in

concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." (Basin Plan at III-8.00). Adequate WET data is not available to determine if the discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective. Attachment E of this Order requires semi-annual chronic WET monitoring for demonstration of compliance with the narrative toxicity objective.

In addition to WET monitoring, Special Provisions VI.C.2.a. requires the Discharger to submit to the Regional Water Board an Initial Investigative TRE Work Plan for approval by the Executive Officer, to ensure the Discharger has a plan to immediately move forward with the initial tiers of a TRE, in the event effluent toxicity is encountered in the future. The provision also includes a numeric toxicity monitoring trigger and requirements for accelerated monitoring, as well as, requirements for TRE initiation if a pattern of toxicity is demonstrated.

D. Final Effluent Limitations

1. Mass-based Effluent Limitations.

Pursuant to the exceptions to mass limitations provided in 40 CFR 122.45(f)(1), mass limitations for waste constituents are not included in this Order because the applicable standards (i.e., water quality objectives) are expressed in terms of concentration and mass limitations are not necessary to protect the beneficial uses of the receiving water.

2. Averaging Periods for Effluent Limitations.

40 CFR 122.45 (d) requires maximum daily and average monthly discharge limitations for all dischargers other than publicly owned treatment works unless impracticable. The effluent limitations for antimony, arsenic, beryllium, chromium, nitrate and nitrite are based on the primary MCL, which is derived from human health-based criteria that would pose no significant health risk to individuals consuming the water on a daily basis. Therefore, AMELs have been applied for these constituents.

3. Satisfaction of Anti-Backsliding Requirements.

This is the first NPDES permit for this facility, therefore the anti-backsliding requirements do not apply.

4. Satisfaction of Antidegradation Policy

The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of currently unregulated discharges.

Discharges from the O-Neal, Government, Robillard, and I-Level Adits enter or have the potential to enter surface waters. Discharges from the New Adit will be directed to surface waters after treatment. These discharges are currently unregulated and contain significant concentrations of natural mineral constituents that the Reasonable Potential Analysis (Attachment G) has shown may exceed water quality objectives. These natural constituents include antimony, arsenic, cadmium, chromium, cobalt, copper, lead, mercury molybdenum, nickel, silver, sulfate, vanadium, and zinc. Other waste constituents that may be contained in the discharge from the water treatment plant serving the New Adit and mill include total petroleum hydrocarbons (diesel), nitrates, ammonia, methyl isobutyl carbinol, and potassium amyl xanthate.

Current receiving waters in Scorpion Gulch exceed water quality objectives for arsenic and lead, therefore no dilution credits were applied. The collection and treatment of the current, unregulated discharges from mine adits and the proposed discharge from the New Adit will reduce the concentrations of the existing constituents in Scorpion Gulch and French Gulch. It is possible that pumping water from the New Adit will dewater the subsurface fractures in the area sufficiently to reduce or even stop the discharge from other mine adits and/or reduce the base flow of water and its mineral constituents entering the streams, therefore reducing the background concentrations of the mineral constituents. For example, mine drainage from the I-level Adit includes concentrations of arsenic up to 275 ug/l. Upon collection and treatment of this discharge, the concentration will be reduced to a minimum of 10 ug/l prior to discharge.

Effluent limitations were not included in this order for barium, selenium, and thallium, for which reasonable potential to exceed the water quality objectives was not indicated following a reasonable potential analyses. The procedures for conducting the reasonable potential analysis are explained elsewhere in the Fact Sheet. The permitted discharge and associated effluent limits are expected to reduce the concentrations of constituents in the current mine adit discharges, and may result in the receiving waters meeting water quality objectives for arsenic and lead, and the overall water quality is expected to be improved by the inclusion of the existing mine adit flows to the proposed treatment system at the Mill. For these reasons, the Regional Water board has determined that an antidegradation analyses is not required to consider the possible impacts resulting from the proposed discharge following the RPA.

Compliance with these requirements will result in the use of best practicable treatment or control of the discharge.

Summary of Final Effluent Limitations
Discharge Point 001-006

Table F-11. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	mgd	0.432			
Antimony, Total Recoverable	µg/L	6.0			
Arsenic, Total Recoverable	µg/L	10.0			
Beryllium	µg/L	4			
Cadmium, Total Recoverable	µg/L	0.23	0.5		
Chromium, Total Recoverable	µg/L	50			
Cobalt, Total Recoverable	µg/L	50			
Copper, Total Recoverable	µg/L	5.0	10.3		
Lead, Total Recoverable	µg/L	1.7	3.4		
Mercury, Total Recoverable	µg/L	0.05	0.10		
Molybdenum, Total Recoverable	µg/L	10			
Nickel, Total Recoverable	µg/L	19.7	39.5		
Silver, Total Recoverable	µg/L				2.3
Vanadium, Total Recoverable	µg/L	100			
Zinc, Total Recoverable	µg/L	13.3	26.7		
Ammonia	mg/L	0.7	2.1		
BOD	mg/L	<5			
Chlorine	mg/l	0.02[1]	0.01[2]		
Electrical Conductivity	µmohs/cm	700			
Nitrate (as N)	mg/L	10			
Nitrite (as N)	mg/L	1			
Oil and Grease	mg/L	10	15		
pH	standard units			6.5	8.5
Total Dissolved Solids	mg/l	450			
Total Petroleum Hydrocarbons (Diesel)	µg/L		50		
Total Suspended Solids	mg/L	20	30		
Methyl Isobutyl Carbinol	µg/L	ND	ND		
Potassium Amyl Xanthate	µg/L	ND	ND		
Acute Toxicity	% survival	Minimum for any one bioassay---------70% Median for any three or more consecctive bioassays—90%			

[1] 1-hour average
[2] 4-day average

E. Interim Effluent Limitations-Not Applicable

F. Land Discharge Specifications

The application of mine waste water to land without appropriate treatment will result in a significant increase in concentration of metals in the soil profile due to evaporation of the water. During storm events, these metals may then be mobilized, potentially in a high concentration slug, and enter either surface or ground water where they may impact water quality. Therefore, the concentration of wastes allowed to be land applied are calculated at one tenth the concentration permitted for discharge to surface waters. Land application can only take place in a designated area where surface water runoff from storm events can be contained and controlled.

G. Reclamation Specifications NOT APPLICABLE

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

Basin Plan water quality objectives to protect the beneficial uses of surface water and groundwater include numeric objectives and narrative objectives, including objectives for chemical constituents, toxicity, and tastes and odors. The toxicity objective requires that surface water and groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective requires that surface water and groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use or that exceed the maximum contaminant levels (MCLs) in Title 22, CCR. The tastes and odors objective states that surface water and groundwater shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan requires the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, toxic substances, radionuclides, or taste and odor producing substances in concentrations that adversely affect domestic drinking water supply, agricultural supply, or any other beneficial use.

A. Surface Water

1. CWA section 303(a-c), requires states to adopt water quality standards, including criteria where they are necessary to protect beneficial uses. The Regional Water Board adopted water quality criteria as water quality objectives in the Basin Plan. The Basin Plan states that "*[t]he numerical and narrative water quality objectives define the least stringent standards that the Regional Board will apply to regional waters in order to protect the beneficial uses*." The Basin Plan includes numeric and narrative water quality objectives for various beneficial uses and water bodies. This Order contains Receiving Surface Water Limitations based on the Basin Plan numerical and narrative water quality objectives for biostimulatory substances, chemical constituents, color, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, salinity, suspended sediment, settleable material,

suspended material, tastes and odors, temperature, toxicity, turbidity, and electrical conductivity.

Numeric Basin Plan objectives for bacteria, dissolved oxygen, pH, temperature, and turbidity are applicable to this discharge and have been incorporated as Receiving Surface Water Limitations. Rational for these numeric receiving surface water limitations are as follows:

a. **Ammonia.** The Basin Plan states that, "[w]*aters shall not contain un-ionized ammonia in amounts which adversely affect beneficial uses. In no case shall the discharge of wastes cause concentrations of un-ionized ammonia (NH_3) to exceed 0.025 mg/l (as N) in receiving waters.*"

b. **Bacteria.** The Basin Plan includes a water quality objective that "*[I]n water designated for contact recreation (REC-1), the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed a geometric mean of 200/100 ml, nor shall more than ten percent of the total number of samples taken during any 30-day period exceed 400/100 ml*." Numeric Receiving Water Limitations for bacteria are included in this Order and are based on the Basin Plan objective.

c. **Biostimulatory Substances**. The Basin Plan includes a water quality objective that "*[W]ater shall not contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses."* Receiving Water Limitations for biostimulatory substances are included in this Order and are based on the Basin Plan objective.

d. **Color**. The Basin Plan includes a water quality objective that "*[W]ater shall be free of discoloration that causes nuisance or adversely affects beneficial uses."* Receiving Water Limitations for color are included in this Order and are based on the Basin Plan objective.

e. **Chemical Constituents**. The Basin Plan includes a water quality objective that *"[W]aters shall not contain chemical constituents in concentrations that adversely affect beneficial uses."* Receiving Water Limitations for chemical constituents are included in this Order and are based on the Basin Plan objective.

f. **Dissolved Oxygen.** Scorpion Gulch and French Gulch have been designated as having the beneficial use of cold freshwater aquatic habitat (COLD). For water bodies designated as having COLD as a beneficial use, the Basin Plan includes a water quality objective of maintaining a minimum of 7.0 mg/L of dissolved oxygen. Since the beneficial use of COLD does apply to Scorpion Gulch and French Gulch, a receiving water limitation of 7.0 mg/L for dissolved oxygen was included in this Order.

   For surface water bodies outside of the Delta, the Basin Plan includes the water quality objective that "…*the monthly median of the mean daily dissolved oxygen (DO) concentration shall not fall below 85 percent of saturation in the main water*

mass, and the 95 percentile concentration shall not fall below 75 percent of saturation." This objective was included as a receiving water limitation in this Order.

g. **Floating Material**. The Basin Plan includes a water quality objective that *"[W]ater shall not contain floating material in amounts that cause nuisance or adversely affect beneficial uses."* Receiving Water Limitations for floating material are included in this Order and are based on the Basin Plan objective.

h. **Oil and Grease**. The Basin Plan includes a water quality objective that *"[W]aters shall not contain oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses."* Receiving Water Limitations for oil and grease are included in this Order and are based on the Basin Plan objective.

i. **pH.** The Basin Plan includes water quality objective that *"[T]he pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses*" This Order includes receiving water limitations for both pH range and pH change.

   The Basin Plan allows an appropriate averaging period for pH change in the receiving stream. Since there is no technical information available that indicates that aquatic organisms are adversely affected by shifts in pH within the 6.5 to 8.5 range, an averaging period is considered appropriate and a monthly averaging period for determining compliance with the 0.5 receiving water pH limitation is included in this Order.

j. **Pesticides**. The Basin Plan includes a water quality objective for pesticides beginning on page III-6.00. Receiving Water Limitations for pesticides are included in this Order and are based on the Basin Plan objective.

k. **Radioactivity**. The Basin Plan includes a water quality objective that *"[R]adionuclides shall not be present in concentrations that are harmful to human, plant, animal or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal or aquatic life."* The Basin Plan states further that *"[A]t a minimum, waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of radionuclides in excess of the maximum contaminant levels (MCLs) specified in Table 4 (MCL Radioactivity) of Section 64443 of Title 22 of the California Code of Regulations…"* Receiving Water Limitations for radioactivity are included in this Order and are based on the Basin Plan objective.

l. **Sediment.** The Basin Plan includes a water quality objective that *"[T]he suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely*

affect beneficial uses" Receiving Water Limitations for suspended sediments are included in this Order and are based on the Basin Plan objective.

m. **Settleable Material.** The Basin Plan includes a water quality objective that *"[W]aters shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses."* Receiving Water Limitations for settleable material are included in this Order and are based on the Basin Plan objective.

n. **Suspended Material.** The Basin Plan includes a water quality objective that *"[W]aters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses."* Receiving Water Limitations for suspended material are included in this Order and are based on the Basin Plan objective.

o. **Taste and Odors**. The Basin Plan includes a water quality objective that *"[W]ater shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses."* Receiving Water Limitations for taste- or odor-producing substances are included in this Order and are based on the Basin Plan objective.

p. **Temperature.** Scorpion Gulch has the beneficial uses of both COLD and WARM. The Basin Plan includes the objective that "[a]*t no time or place shall the temperature of COLD or WARM intrastate waters be increased more than 5ºF above natural receiving water temperature*." This Order includes a receiving water limitation based on this objective.

q. **Toxicity**. The Basin Plan includes a water quality objective that *"[A]ll waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life."* Receiving Water Limitations for toxicity are included in this Order and are based on the Basin Plan objective.

r. **Turbidity.** The Basin Plan includes a water quality objective that "*[I]ncreases in turbidity attributable to controllable water quality factors shall not exceed the following limits:*

- *Where natural turbidity is between 0 and 5 Nephelometric Turbidity Units (NTUs), increases shall not exceed 1 NTU.*
- *Where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20 percent.*
- *Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTUs.*

- *Where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent*."

A numeric Receiving Surface Water Limitation for turbidity is included in this Order and is based on the Basin Plan objective for turbidity.

B. Groundwater-NOT APPLICABLE

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

Section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorizes the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (MRP), Attachment E of this Order, establishes monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this facility.

A. Influent Monitoring

1. Influent monitoring is required to collect data on the characteristics of the wastewater and to assess variation in the influent volume and character over time.

B. Effluent Monitoring

1. Pursuant to the requirements of 40 CFR §122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to assess compliance with effluent limitations, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving stream.

   There are discharges from the proposed waste water treatment plant (EFF-001) and the New (EFF-002), Robillard (EFF-003), Government (EFF-004), O'Neil (EFF-005) and I-level (EFF-006) adits that must be monitored to determine compliance with the permit conditions and to gage progress towards reducing pollutant loads. Effluent discharged to land (LND-001) must also be monitored to assure pollutants do not build up in the soil where they may be transported to surface or ground water.

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Semi-annual 96-hour bioassay testing is required to demonstrate compliance with the effluent limitation for acute toxicity.

2. **Chronic Toxicity.** Semi-annual chronic whole effluent toxicity testing is required in order to demonstrate compliance with the Basin Plan's narrative toxicity objective.

D. Receiving Water Monitoring

1. Surface Water

a. Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream.

i. Receiving water monitoring shall be on a monthly basis for the first year and quarterly thereafter upstream and downstream of the discharge from the waste water treatment plant (RSW-001 and RSW-002).

ii. Receiving water monitoring shall be on a quarterly basis for the first year and semi-annually thereafter upstream and downstream of the adit discharges (RSW-003 through RSW-010).

2. Groundwater –Not Applicable

E. Other Monitoring Requirements

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with section 122.41, and additional conditions applicable to specified categories of permits in accordance with section 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under section 122.42.

Section 122.41(a)(1) and (b) through (n) establish conditions that apply to all State-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. Section 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with section 123.25, this Order omits federal conditions that address enforcement authority specified in sections 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

B. Special Provisions

1. Reopener Provisions

a. **Pollution Prevention-Not Applicable.**.

b. **Whole Effluent Toxicity.** This Order requires the Discharger to conduct a whole Effluent Toxicity Test to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity, if necessary, through a Toxicity Reduction Evaluation (TRE). This Order may be reopened to include a numeric chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if a numeric chronic toxicity water quality objective is adopted by the State Water Board, this Order may be reopened to include a numeric chronic toxicity limitation based on that objective.

c. **Water Effects Ratio (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating CTR criteria for applicable priority pollutant inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations for cadmium, copper, lead, nickel, silver, and zinc. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

d. **Constituent Study.** The discharge to surface waters requires the construction of a water treatment system. The system has not yet been built and therefore it is not known exactly what the effluent will contain, especially in relation to metals, explosive residue, reagents used in the mineral recovery circuit, and other priority pollutants required in the SIP (Attachment H). If after review of the study results, if it is determined that the discharge has a reasonable potential to cause or contribute to an exceedance of a water quality objective, this Order may be reopened and effluent limitation added for the subject constituents.

2. Special Studies and Additional Monitoring Requirements

a. Chronic Whole Effluent Toxicity Requirements. The Basin Plan contains a narrative toxicity objective that states, “All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.” (Basin Plan at III-8.00.) Adequate WET data is not available to determine if the discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan’s narrative toxicity objective. Attachment E of this Order requires Quarterly chronic WET monitoring for demonstration of compliance with the narrative toxicity objective.

In addition to WET monitoring, this provision requires the Discharger to submit to the Regional Water Board an Initial Investigative TRE Work Plan for approval by the Executive Officer, to ensure the Discharger has a plan to immediately move forward with the initial tiers of a TRE, in the event effluent toxicity is encountered in the future. The provision also includes a numeric toxicity monitoring trigger and requirements for accelerated monitoring, as well as, requirements for TRE initiation if a pattern of toxicity is demonstrated.

Monitoring Trigger. A numeric toxicity monitoring trigger of > 1 TUc (where TUc = 100/NOEC) is applied in the provision, because this Order does not allow any dilution for the chronic condition. Therefore, a TRE is triggered when the effluent exhibits a pattern of toxicity at 100% effluent.

Accelerated Monitoring. The provision requires accelerated WET testing when a regular WET test result exceeds the monitoring trigger. The purpose of accelerated monitoring is to determine, in an expedient manner, whether there is a pattern of toxicity before requiring the implementation of a TRE. Due to possible seasonality of the toxicity, the accelerated monitoring should be performed in a timely manner, preferably taking no more than 2 to 3 months to complete.

The provision requires accelerated monitoring consisting of four chronic toxicity tests every two weeks using the species that exhibited toxicity. Guidance regarding accelerated monitoring and TRE initiation is provided in the *Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991* (TSD). The TSD at page 118 states, "EPA recommends if toxicity is repeatedly or periodically present at levels above effluent limits more than 20 percent of the time, a TRE should be required." Therefore, four accelerated monitoring tests are required in this provision. If no toxicity is demonstrated in the four accelerated tests, then it demonstrates that toxicity is not present at levels above the monitoring trigger more than 20 percent of the time (only 1 of 5 tests are toxic, including the initial test). However, notwithstanding the accelerated monitoring results, if there is adequate evidence of a pattern of effluent toxicity (i.e. toxicity present exceeding the monitoring trigger more than 20 percent of the time), the Executive Officer may require that the Discharger initiate a TRE.

See the WET Accelerated Monitoring Flow Chart (Figure F-X), below, for further clarification of the accelerated monitoring requirements and for the decision points for determining the need for TRE initiation.

TRE Guidance. The Discharger is required to prepare a TRE Work Plan in accordance with USEPA guidance. Numerous guidance documents are available, as identified below:

- *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants,* (EPA/833B-99/002), August 1999.
- Generalized Methodology for Conducting Industrial TREs*, (EPA/600/2-88/070), April 1989.*
- *Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures,* Second Edition, EPA 600/6-91/005F, February 1991.

- *Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I*, EPA 600/6-91/005F, May 1992.

- *Methods for Aquatic Toxicity Identification Evaluations: Phase II Toxicity Identification Procedures for Samples Exhibiting acute and Chronic Toxicity,* Second Edition, EPA 600/R-92/080, September 1993.

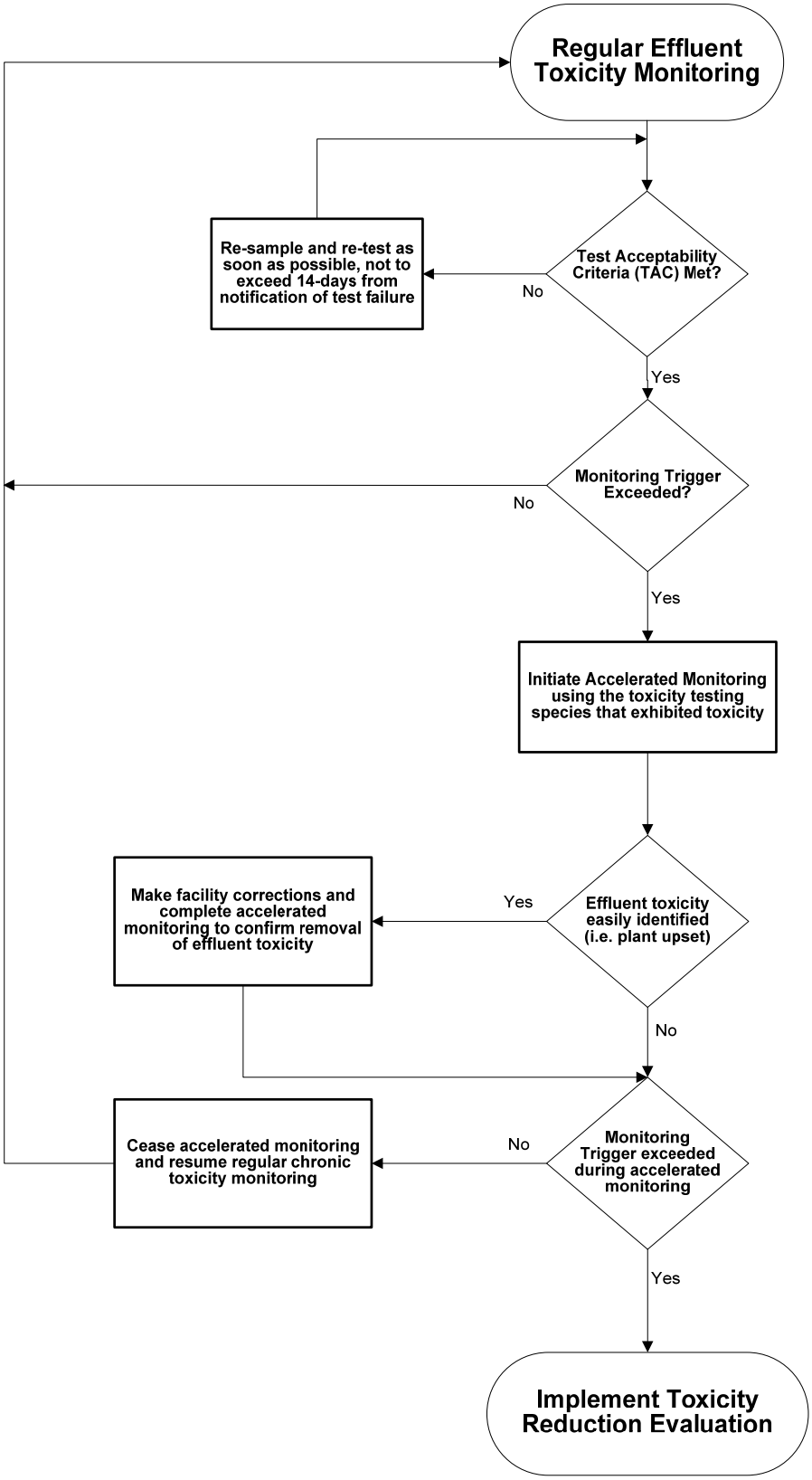
- *Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity*, Second Edition, EPA 600/R-92/081, September 1993.

- *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, Fifth Edition, EPA-821-R-02-012, October 2002.

- *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, Fourth Edition, EPA-821-R-02-013, October 2002.

- *Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991*

Figure F-3
WET Accelerated Monitoring Flow Chart



3. Best Management Practices and Pollution Prevention

a. **Best Management Practices –Not Applicable.** :

b. **Pollution Prevention Plan (PPP) for arsenic.** A PPP for arsenic is required in this Order per CWC section 13263.3(d)(1)(D) as part of compliance with the Cease and Desist Order. The interim effluent limitations for arsenic established in the Cease and Desist Order limits the discharge concentrations from known mine adits to current levels. The current arsenic discharges contribute to surface waters exceeding the water quality objective of 10 µg/L for a municipal or domestic drinking water supply. The Discharger, through the installation of the planned water treatment system and collection and treatment of mine drainage from various adits, has the ability to reduce the arsenic concentrations discharged to surface waters. The PPP shall be developed in conformance with CWC section 13263.3(d)(2) as outlined in subsection b., below.

c. **CWC section 13263.3(d)(2) Pollution Prevention Plans.** The pollution prevention plans required for arsenic shall, at minimum, meet the requirements outlined in CWC section 13263.3(d)(2). The minimum requirements for the pollution prevention plans include the following:

   i. An analysis of one or more of the pollutants, as directed by the state board, a regional board, or a POTW, that the facility discharges into water or introduces into POTWs, a description of the sources of the pollutants, and a comprehensive review of the processes used by the discharger that result in the generation and discharge of pollutants.

   ii. An analysis of the potential for pollution prevention to reduce the generation of the pollutants, including the application of innovative and alternative technologies and any adverse environmental impacts resulting from the use of those methods.

   iii. A detailed description of the tasks and time schedules required to investigate and implement various elements of pollution prevention techniques.

   iv. A statement of the discharger's pollution prevention goals and strategies, including priorities for short-term and long-term action.

   v. A description of the discharger's existing pollution prevention methods.

   vi. A statement that the discharger's existing and planned pollution prevention strategies do not constitute cross media pollution transfers unless clear environmental benefits of such an approach are identified to the satisfaction f the state board, the regional board, or the POTW, and information that supports that statement.

vii. Proof of compliance with the Hazardous Waste Source Reduction and Management Review Act of 1989 (Article 11.9 (commencing with Section 25244.12) of Chapter 6.5 of Division 20 of the Health and Safety code) if the discharger is also subject to that act.

viii. An analysis, the extent feasible, of the relative costs and benefits of the possible pollution prevention activities.

ix. A specification of, and rational for, the technically feasible and economically practicable pollution prevention measures selected by the discharger for implementation.

4. Construction, Operation, and Maintenance Specifications

a. **Closure and Post-Closure Maintenance**. Section 13263.1 CWC states "Before a regional board issues or revised waste discharge requirements pursuant to Section 13263 for any discharge of mining waste, the regional board shall first determine that the proposed mining waste discharge is consistent with a waste management strategy that prevents the pollution or contamination of waters of the state, particularly after closure of any waste management unit for mining waste". After mining operations have ceased, mine drainage containing appreciable pollutants in the form of soluble metals will continue to discharge from the mine adits where they can impact surface or ground water unless measures are taken to prevent the discharge. Since this discharge can potentially continue for hundreds or thousands of years, it is necessary to plan the mining operation and closure in advance to reduce or prevent the occurrence of mine drainage. Planning of closure during the mining phase will also for the development and establishment of financial assurances to construct and maintain structures and systems necessary to prevent impacts on water quality.

5. Special Provisions for Municipal Facilities (POTWs Only) - Not Applicable

6. Other Special Provisions – Not Applicable

7. Compliance Schedules – Not Applicable

VIII. PUBLIC PARTICIPATION

The California Regional Water Quality Control Board, Central Valley Region (Regional Water Board) is considering the issuance of waste discharge requirements (WDRs) that will serve as a National Pollutant Discharge Elimination System (NPDES) permit for the Washington Mine. As a step in the WDR adoption process, the Regional Water Board staff has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through physical posting, mailing, and internet posting.

B. Written Comments

The staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments must be submitted either in person or by mail to the Executive Office at the Regional Water Board at the address above on the cover page of this Order.

To be fully responded to by staff and considered by the Regional Water Board, written comments should be received at the Regional Water Board offices by 5:00 p.m. on 4 September 2009.

C. Public Hearing

The Regional Water Board will hold a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date: 8 and 9 October 2009
Time: 8:30 am
Location: Regional Water Quality Control Board, Central Valley Region
11020 Sun Center Dr., Suite #200
Rancho Cordova, CA 95670

Interested persons are invited to attend. At the public hearing, the Regional Water Board will hear testimony, if any, pertinent to the discharge, WDRs, and permit. Oral testimony will be heard; however, for accuracy of the record, important testimony should be in writing.

Please be aware that dates and venues may change. Our Web address is http://www.waterboards.ca.gov/rwqcb5/ where you can access the current agenda for changes in dates and locations.

D. Waste Discharge Requirements Petitions

Any aggrieved person may petition the State Water Resources Control Board to review the decision of the Regional Water Board regarding the final WDRs. The petition must be submitted within 30 days of the Regional Water Board's action to the following address:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street

Sacramento, CA 95812-0100

E. Information and Copying

The Report of Waste Discharge (RWD), related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the Regional Water Board Redding Office, 415 Knollcrest Dr, Redding, 96002 at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Regional Water Board by calling (530) 224-4845.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Water Board, reference this facility, and provide a name, address, and phone number.

G. Additional Information

Requests for additional information or questions regarding this order should be directed to Philip Woodward at (530) 224-4853.